

# FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 219. (No. 10, Vol. V.)

MARCH 8, 1913.

[Registered at the G.P.O.] [Weekly, Price 8d.  
as a Newspaper. Post Free, 8½d.]

## Flight.

Editorial Office: 44, ST. MARTIN'S LANE, LONDON, W.C.  
Telegrams: Truditur, Westrand, London. Telephone: Gerrard 1828.  
Annual Subscription Rates, Post Free.  
United Kingdom ... 15s. od. Abroad ... 20s. od.

### CONTENTS.

	PAGE
Editorial Comment:	
A Soldier's Advice	271
The Million	272
Airships for the Navy	272
The Model Brigade	274
Men of Moment in the World of Flight: Mr. G. Holt Thomas	273
H.M.A. "Delta"	276
Military Aviation. By Major F. H. Sykes	277
Royal Aero Club. Official Notices	282
British Regulations for Aircraft	284
Flying at Hendon	285
From the British Flying Grounds	286
British Notes of the Week	290
Foreign Aviation News	291
Stability Devices	293
Models. Edited by V. E. Johnson, M.A.	294

## EDITORIAL COMMENT.

### A Soldier's Advice.

"Aviation is the most important subject to which the modern officer can pay attention at the present day."

In these words, spoken during the course of the Aeronautical Society's meeting, over which he presided last Wednesday week, General Sir John French summed up the situation from the soldier's point of view. Coming from the Chief of the Imperial General Staff, and being uttered in the theatre of the Royal United Service Institution which has heard so many memorable addresses by famous men of both branches of the Service, it is a piece of advice to which officers in general will not, we hope, be slow to pay heed. In the more widespread interest in the purpose and extended appreciation of the work of the Royal Flying Corps among all ranks of the Army and Navy there lies an immense stimulus towards the rapid attainment of that which one and all desire, Great Britain's supremacy in the air.

The occasion of Sir John French's remarks was itself one of first class importance, for Major F. H. Sykes, Commandant military wing, R.F.C., had just concluded a lecture on Military Aviation that must certainly rank as the best reasoned disquisition on the purpose and effect of flying in war that has yet been delivered.

Such a peroration is, we say, a matter of first class importance, because it is of the utmost consequence that soldiers should thoroughly understand the problems before the aeroplane constructor, while it is perhaps even of more consequence that the constructor should equally well appreciate the soldier's work. Indeed, there is abundant evidence that students of aviation must likewise become students of the art of war. v. Clausewitz and v. der Goltz must take their places on the book-shelf beside the works of Lanchester, Eiffel and Duchêne.

We trust that no reader of FLIGHT will fail to peruse the text of Major Sykes' lecture, which appears elsewhere, for besides being one of the most important, it is also one of the most interesting and readable contributions to aeronautical literature that we have printed for some time.

Those who do read his remarks will no doubt be struck, as were many who attended the lecture itself last Wednesday week, by a statement to the effect that aviation will *not* revolutionise warfare. It has been our common practice to express an opinion of the opposite order, and the apparent opposition of our points of view calls for explanation.

What Major Sykes means when he says that aviation will not revolutionise warfare is that it will not affect the basic principles that have been proved times out of number to be those most conducive to victory in battle; principles that were true in the days before Cæsar, were true yesterday before the coming of the aeroplane, and will be true to-morrow when the aeroplane has come. When the bullet replaced the sword it did not alter these principles, nor will they be altered by the presence of "cavalry" in the air.

In making these remarks, Major Sykes is essentially speaking to soldiers. The "revolutionary character" of the aeroplane in war to which we in common with others have ordinarily referred is its ability to dispel in a large measure the "fog of war." In his discourse, Major Sykes makes it very clear that the "fog of war" has increased with the development of the range and power of the weapons of offence, and with the tremendous expansion of the battle front that now characterises an important engagement. The aeroplane, with its high speed and independence of roads, will do much to enable the commander-in-chief to see the enemy over the hill.

Military opinions differ as to the propriety of decisive fighting between cavalry who come into contact during

reconnaissance ; but General French is very evidently in accord with those who hold that fighting in the air will often be a necessary and important prelude to land battles.

This is something that constructors should keep in the forefront of their minds. It forecasts the coming of much larger and more powerful aeroplanes, and herein England, let us sincerely hope, may play a leading rôle among the nations of the world.

## The Million.

During the past week there has hardly been a daily newspaper of importance that has not joined in the cry for a million pounds to be set aside for aeronautics in the ensuing estimates. If ever the voice of the people has spoken a decisive word, it has surely on this occasion been made quite evident that the country at large expects the Government to do its duty in setting about the establishment of England's supremacy in the air.

Not alone among Unionist papers has the demand for immediate aerial development been loud and strong, Liberal organs of the standing of the *Manchester Guardian* have likewise rendered it abundantly clear that the Government will be much at fault if it brooks further delay. For this unanimity of opinion we are devoutly grateful. The nation's position in the air is no more a party question than is the strength of the Navy, and no sort of political prejudice should be allowed to stand in the way of progress.

Equally should the public voice, as spoken in the Press, be concerted in the character of its demand. It is a National matter, this need for aerial expansion, and as such it essentially affords a platform on which Englishmen of every sort of creed and party feeling can take a common stand. In calling upon the great general Press to arouse the nation to a proper sense of its position, as we did in our editorial of three weeks ago, we were careful to avoid detail that could give rise to contentious difference of opinion such as might divert the public mind from the main issue.

It was necessary, nevertheless, to set up something in the nature of a tangible standard by which people might fix ideas, and for that reason we adopted the Million as our war cry instead of some vague platitude implying perfection.

The million was not selected by chance, albeit the presence of six ciphers is obviously a matter of convenience. The last vote was for about one-third of that sum and it is important that we should not in the first flush of national enthusiasm attempt to "bite off more than we can chew." Above everything else, it is important that what we attempt we should do well and that we should not dissipate either our energies or our wealth in the starting of numberless new schemes of advance.

In the Royal Flying Corps, the country already possesses a good "scheme" and on the proper establishment and expansion of that excellent new arm all efforts should for the moment be concentrated. Much must yet be done before the R.F.C. is placed properly on the footing for which it was planned. With its 7 squadrons of 12 aeroplanes each, the R.F.C. represents, like our regular army itself an expeditionary force. More than this is wanted before England's force in the air is made to assume proper proportions, but for the moment let us at least make perfect what we at present possess. If the complete and proper equipment of the R.F.C. with barracks, transport, grounds, sheds and other considerations that involve capital outlay represent an expenditure

of say a quarter of a million, then let us hasten to provide the necessary funds whereby that work may be put in progress and be quickly finished. It will be the most direct route to the future prosperity of the aeroplane industry.

## Airships for the Navy.

Another matter that does, however, most certainly call for immediate attention and recognition is that airships must be provided for the Naval wing of the R.F.C.

So long as there was a hopeless shortage of money and no apparent prospect of arousing the interest of either people or Parliament in a way that should lead to the provision of more, we held that it was beneficial to concentrate on the use of aeroplanes and the training of pilots. Such seemed to us to be the most direct means of collecting together a fair number of men for a common purpose—in fine, the best way of creating the nucleus of an aerial force. Moreover, we already possessed a small aeroplane industry, developed by private enterprise, which was in dire need of immediate business and the maintenance of which was then, as it is now, of the greatest importance to the nation.

But, it has been apparent for many years that our forced neglect of airships must eventually jeopardise the very standing of the country were it allowed much longer to continue, and we regard it as a happy augury that the present wave of popular opinion in favour of adequate aerial armament for Britain should have associated itself in a large measure with that type of craft.

Out of the million that we hope to obtain we could wish to see half devoted to the Naval wing. The provision of airships, as compared with the cost of aeroplanes, is an expensive business, and it is not only necessary to provide the airships, but also to build the sheds and to find the ground.

In respect to this latter there is an excellent opportunity for the display of public spirit among municipalities along our East coast. The acquisition by the Navy of suitable sites for dirigible sheds should not be the occasion for individual profit, but for collective generosity. We do not suggest public subscription in the ordinary sense, but communal co-operation and local *esprit de corps*. It is not only a ground large enough to take a dirigible shed that is wanted, but the freedom of the air over some 800 acres in its vicinity that must be ensured for all time. In this latter direction it is that local authorities might do much to facilitate the rapid and effective growth of Britain's aerial fleet.

The time is ripe for someone to come forward. Who will be the first? Before the end of the year we should be able to show some tangible evidence of progress, always assuming that we get not less than the million. Sheds such as might house a couple of the largest Zeppelins not only cost money—perhaps as much as £60,000—but they would hardly be built in less than nine months.

Then the airships themselves ; it is high time we commenced to build these in this country, and if the million is forthcoming we sincerely hope to hear that tenders for their construction will be invited. Needless to say, the building of a large dirigible is a vastly more difficult problem than the construction of a modern aeroplane, and its magnitude is one that should interest some of our largest engineering firms. Vickers' and Armstrong's, for instance, naturally occur to the mind as firms already fitted to undertake Government work of this kind, and between them they ought to be able to give

MARCH 8, 1913.

FLIGHT

## MEN OF MOMENT IN THE WORLD OF FLIGHT.



MR. G. HOLT THOMAS, who has been so prominent in helping forward the aeroplane industry in this country. In 1909 he arranged for Paulhan to fly at Brooklands and Sandown Park, &c., and since then has been active in the more important aviation events. He has founded a British factory for the construction of Farman machines.



the country an airship of [which we might well feel proud. The Aircraft Factory doubtless also has designs that would give effect to the lessons of past experience on a smaller scale, while it is also quite likely that a certain amount of private capital may be attracted into the business, and that in the course of time the airship may be developed on a commercial scale.

One thing, however, is certain, the Naval wing of the R.F.C. must no longer be without its dirigibles, for it can no more be said to be complete with a sole equipment of hydro-aeroplanes than would the Navy be were it to consist only of cruisers. And again we may add, the proper establishment of the Naval wing in respect to airships will be the shortest high road to the rapid expansion of the further use of aeroplanes in the same branch of the service.

## The Model Brigade.

The enthusiastic flyers of model aeroplanes who took part in the competition for the Royal Aero Club's prizes last Saturday have come a long way since the demonstrations at the Alexandra Palace some years ago, when this form of pastime received its first official recognition. With equal truth, however, it may be said that they have a long way still to go.

The weather conditions under which the models were flown both at the Hendon Aerodrome in the morning and on the Welsh Harp for the model hydro-aeroplanes, in the afternoon, were very severe. There was a strong gusty wind at all times and the surface of the lake was, from the stand-point of a model water-plane, distinctly choppy. These facts, however, served only the more to emphasise the conclusion at which we have long since arrived, namely, that model design and construction are a problem apart and demand the special study of those who would succeed in the building of a good model flyer. That the game is "worth the candle" we firmly believe, and have shown as much by our systematic efforts to encourage the model readers of FLIGHT. It is a healthy outdoor amusement, and it affords an ever-present stimulus to the mind. As a hobby for boys it

is hard to beat, for it encourages scientific study and the skilful use of tools in the creation and manifestation of an idea. The model aeroplane designed and constructed, there remains the problem of making it fly, which affords at once a healthy form of exercise, much opportunity for the display of patience, and an early grounding in the lesson that the world teaches every man sooner or later, and which Shakespeare delicately expressed in the adage, "All that glitters is not gold."

In our opinion the aero modellist would do well to study the problems of his own craft in closer detail, and leave the full-sized aeroplane out of the question except in so far as its lessons may give him assistance. The time has come, too, when model competitions might usefully seek to develop more originality, say, for instance, in the design of under-carriages that would really keep a model right side up and undamaged after a crooked landing. The same applies with even greater force to models that alight on the water. Obviously what is required is a far greater width of chassis base in proportion to the wing span than is necessary on a real aeroplane which is under human control. Then again, more attention might well be paid to the gliding qualities of model aeroplanes; few of those flown in the wind on Saturday settled otherwise than head first. A prize for gliding from a pylon or a roof might usefully be included in future competitions; it would teach much as to the inherent balance, best wing loading and natural speed of models.

As a move towards developing the self-propelled flying qualities of their machines, aero-modellists might consider the advantage of a suggestion made in FLIGHT long ago, which we called "Flight-golf." The idea, *au fond*, was to complete a course in stages by flight; and this also might serve as an excellent basis for the award of future prizes.

In encouraging the movement as it has done by substantial money prizes, the Royal Aero Club has been true to its best traditions and has ably supported the good work of the Kite and Model Aeroplane Association under whose auspices this branch of aeronautics is officially fostered.

## ROYAL FLYING CORPS (MILITARY WING).

WAR OFFICE Summary of work, week ending 1st March:—

**No. 1 (Airship) Squadron.**—The "Beta" engines having been thoroughly overhauled, on Wednesday a test of one hour and speed trials were performed, the latter giving very satisfactory results. On Thursday, a flight to Salisbury and back, *via* Andover, was made, lasting in all 4 hours, the journey being performed without incident or hitch of any kind. Friday was also occupied in another series of speed trials. The spare envelope of "Beta" is on loan to the detachment Naval Wing, which is attached to the Military Wing for instruction in airship work. The envelope is attached to the car of the Admiralty Willows airship, but met with a slight accident at Ash on Thursday, when piloted by Lieut. Woodcock, R.N. "Delta" has returned from the Show at Olympia, and will shortly be available for training purposes. Besides airship work, a good deal of kite-work has been got through during the week, and a number of free balloon runs made.

**No. 2 Squadron.**—The main event of the week has been the successful termination of the flight to Montrose. The evening of the 25th saw four machines assembled at Edinburgh, while the fifth, Lieut. Waldron's Maurice Farman, was at Berwick. On the 26th, all the machines reached Montrose, Capt. Becke on No. 217 (BE type) accomplished the journey in 45 mins. Lieut. Waldron made a non-stop flight from Berwick to Montrose. On the 27th and 28th, all the officers of the squadron were out on their machines, exploring the country round Montrose.

**No. 3 Squadron.**—Monday and Tuesday were occupied in short test flights on the BE type machines. On Wednesday, a party of non-commissioned officers and men of the Squadron, under an

officer, paid a visit to the Woolwich Arsenal. On Thursday Maurice Farman machines Nos. 214 and 216 were flying well in a wind of 25-30 miles per hour. Friday was a good flying day, with a light wind, and a lot of work was got through by five officers of the Squadron.

**No. 4 Squadron.**—The new Cody machine is now ready for use, and after a final test by Mr. Cody, was taken out for rolling practice on Friday by the officer who is learning to fly it. The other machine is now back from Olympia, and may shortly be expected to be in flying trim. Both the Breguet and BE machines were out on Monday, Wednesday, Thursday and Friday, but on the latter day No. 206 was found to be suffering from a heated front bearing, which necessitated taking down the engine.

War Office, March 4th.

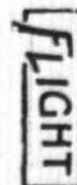
## The Fatal Accident to Geoffrey England.

WHILE attempting an hour's flight on a Bristol monoplane over Salisbury Plain on Wednesday, Mr. Geoffrey England, brother of Mr. Gordon England, met with an accident which ended fatally. He had been flying for 40 mins. at a height of 5,000 ft., during which the wind increased from 25 m.p.h. to about 35 m.p.h., when the machine commenced a very steep descent with the engine running. From a height of about 600 ft., when over Durrington Down, the machine dropped to the ground, and when those who had been watching the flight reached the scene of the accident the pilot had succumbed to his injuries. Members of the Accidents Investigation Committee of the Royal Aero Club immediately proceeded to the scene of the accident.



MARCH 8, 1913.

275



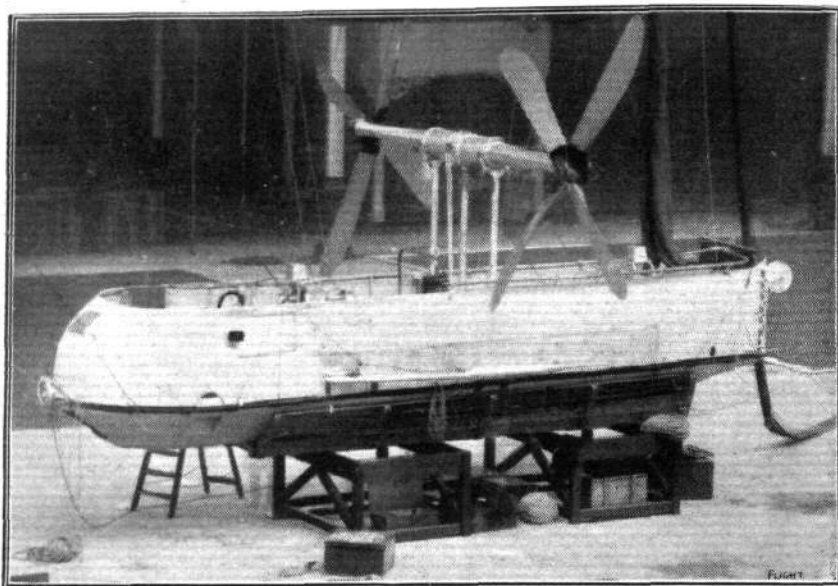
The reported flights made over England by unknown airships have led the Government to construct a Bill dealing with the matter. The Act forbids the passage of aircraft over certain areas, or, if the Government should deem it necessary, over the whole of the coast-line of the United Kingdom and the territorial waters adjacent thereto. Should any aerial vessel infringe this law, the proper officers will be entitled, after giving a prescribed signal of warning, to fire at, or into, any such aircraft, and use any and every other means to prevent infraction of the law. At the second reading, Colonel Seely said: "I would point out to the House that this Bill is not aimed at the aircraft of any foreign Power, but rather at preventing mischievous persons—possibly from over-sea—from hovering over places where there are combustible stores, to the great inconvenience of the people of this country." This, of course, is stating the case somewhat mildly; for there can be no doubt that the law will be so designed that it will be perilous also for unauthorised aircraft to pass over fortifications, harbours, and naval bases. The map showing airship sheds is based on material in the *Review of Reviews* and in *FLIGHT*.

## H.M.A. "DELTA."

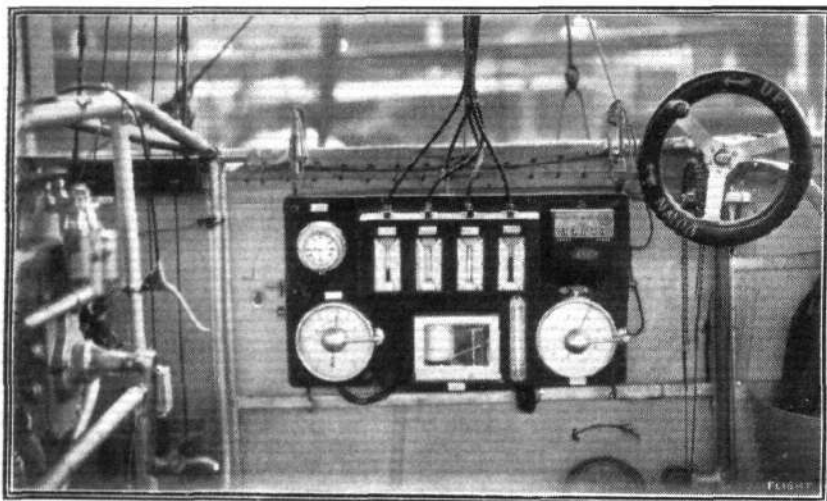
THIS airship, which was exhibited over the central aisle at Olympia, was built at the Royal Aircraft Factory in 1912, and is of the non-rigid type. It has a Continental fabric gas vessel of 180,000 cub. ft. capacity, and two engines of a joint power of 210-h.p. capable of propelling the ship at about 44 m.p.h.

A car about 28 ft. in length is hung from the envelope by steel wires. In the car the steersman has a fixed seat, in front of which is a steering wheel arranged more or less on the motor car plan. There are also clutch pedals for each engine and throttle levers for controlling their power output. The compass, aneroid, and inclinometer are near by, and at night are illuminated by an electric light maintained by a C.A.V. battery system.

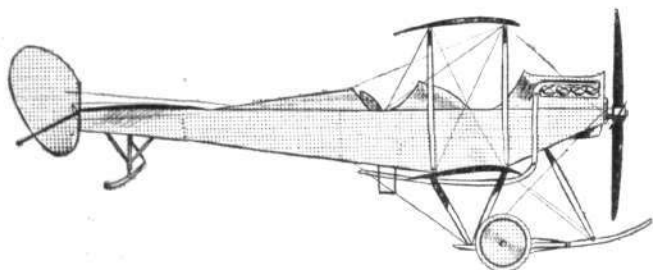
On the port side is a wheel for swivelling the propellers. The propellers are carried at the extremities of a transverse tubular beam arranged between the envelope and the car. The swivelling apparatus enables them to be turned into any plane, and when leaving the ground they are used for exerting a direct upward lift. Similarly, when descending they are employed to pull the airship earthwards. By mounting the propellers on opposite sides of the axis, so that one is in effect a propeller and the other a tractor screw, their weights are



The car of the "Delta," the War Office dirigible at Olympia.

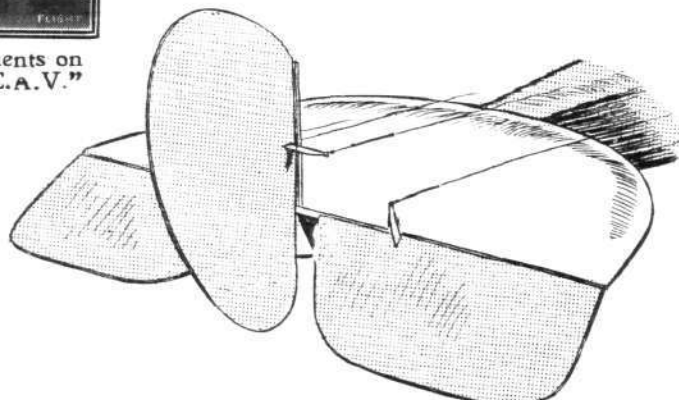


Control arrangements on H.M.A. "Delta." Among the instruments on the dash is the "C.A.V." switchboard for controlling the "C.A.V." lighting installation with which this vessel is equipped.



"Flight" Copyright.

The British Army biplane, BE 2.



"Flight" Copyright.

The tail of the BE 2 biplane.

### The Gordon-Bennett Race.

ENGLAND and France are the only countries which have entered full teams of three for the next Gordon-Bennett aviation contest, but the U.S.A. has nominated two challengers, while Italy, Belgium and Germany have nominated one each.

### The Gordon-Bennett Balloon Race.

EIGHT countries have entered for this year's Gordon-Bennett balloon race. France, Germany, Austria, Switzerland and America have each sent in three entries, while Great Britain, Italy and Belgium are to be represented by two balloons each.

### Maurice Farman's Weekly Trip.

ACCOMPANIED by Senouque, Maurice Farman, on Sunday after-

noon, flew from Buc, by way of Chartres, to just by Tillieres sur Avre (Eure), where they inspected a big hangar which is being erected. They returned to Buc via Houdan. On the previous Friday, M. Farman, with Senouque, visited Chambard Castle, landing, after two hours and ten minutes flying, on the lawn in front of the Castle. The return journey to Buc was made later in the afternoon without incident.

### High Up on a Kite.

THE No. 1 Squadron of the Royal Flying Corps carried out an extensive series of experiments with kites at Farnborough, on Tuesday, and in one case an officer and two men were carried to a height of 2,000 feet.



## MILITARY AVIATION.

By MAJOR F. H. SYKES, Commandant, Military Wing, Royal Flying Corps.\*

WE have recently listened to most excellent technical lectures on subjects to do with the actual design of aircraft. I think it may now be of interest to consider the more military aspect—that is to say, the directions in which aircraft will be used, and the results to be gained.

**Aviation will not revolutionise warfare.**—It is sometimes said that aviation will revolutionise warfare, or even stop it altogether. This, of course, is absurd. The main principles of war have been the same for centuries, and will probably remain so for several more. Their instruments (of which aviation is the latest, and to me the most wonderful) it is which vary. That it will, however, have a great effect on warfare I am convinced. I hope to show the form which I think this effect will take.

**Main principles of strategy.**—First let me attempt to reduce to a few words the great principles of war strategy (as against peace strategy or all the preparations made before war broke out) which the new arm must attempt to serve. They are these:

**Strategic penetration:** Child's play, go for the enemy in his centre, hold him on one hand, beat him quickly on the other.

**Interception:** Walk round and masticate him thoroughly from behind.

**Concentration of superior force at the decisive point:** Select the hostile weakest point, his flank or rear if possible, mass there, and reap the well-earned results. It sounds very simple.

But perhaps the enemy may be trying the same methods on you. Roads may be feet deep in mud, railways broken, bridges blown up, passes blocked, rivers (of course quite unfairly) in flood, transport broken down, supplies lacking, men hungry, cold, worn out, diseased. Your generals and staff not made of radium or be of the clock-working omniscient type you have, of course, a right to expect. Such things have been.

Your countrymen, legislative bodies, Press, Stock Exchange, will take good care that you hear their comments: "Why doesn't old Brown-Jones get on?" "What is he doing?" "It is all so straightforward." "Can't the muddlepat see?" "Unless he bags the enemy's army at once we really must send Jones-Brown." War, like most other things, is simple, unless you know something about it.

But how does this affect military aviation? In this way. The fundamental difficulties of war are much the same now as they were in the days of Caesar. Even aviation will not alter them. In the 13th century armies were of some 30,000 men, and started real business when a few yards apart. At Waterloo, the sides roughly were 120,000 and 90,000. In 1904, in Manchuria, one battle—Mukden—had a frontage of 80 miles, and the forces in the field numbered about 310,000 each.

In future (except possibly in the case of England) the entire able manhood of the country will take part at one point or another. Yet in all cases, given more or less an equal degree of preparation, both sides labour under much the same difficulties, and enjoy similar advantages. The old, old, principles prevail.

\* Lecture to the Aeronautical Society on Wednesday, February 26th, at the Royal United Service Institution. General Sir J. D. P. French, G.C.B., Chief of the Imperial General Staff, in the Chair.

**Development of instruments and factors.**—Instruments, however, change. Factors develop. The latest—aerial work—is pushing its way amongst the innumerable concomitants of war. What will be its effect? Will one side gain? Will both gain, and so re-balance one another? In any case, no revolution of methods will occur.

**General effect of aviation on strategy and tactics.**—Before dealing in detail with points which go to make up military aviation, I should like to show briefly their general result. In the first place, the plans drawn out previously in peace will require even greater care and brain power devoted to them in order that the preliminary dispositions of troops, that is "strategical deployment," are the best possible. An all-round speeding up of the strategic operations may be expected. The sequence, order, counter-order, and disorder should be less frequent. If the huge masses of modern armies are found to have been wrongly placed, no amount of zeal, training, bravery or mobility can make up. There will be no time for a general re-shuffling. The offensive will increase in advantage over the defensive. Leaders must be prompt and correct in decision, troops prepared to make long and rapid movements. Army corps will take upon themselves more the role of naval squadrons—their positions, strengths and movements will be generally known. True efficiency, leadership of men, the greatest mobility, and, other things being equal, the greatest number will win. Hitherto it has been possible for a small, exceedingly mobile and well-handled force, by rapid, hidden movements, sometimes to defeat considerably larger numbers. It was in this way that the splendid daring of Jackson, the American General, had such great results in the Shenandoah Valley, in the war between the North and South.

Aircraft will, I think, render this line of action practically impossible.

There can be no doubt that unless one side definitely obtains command of the air (and I will touch on this in more detail later), the cards will be more openly displayed for both. The problems of land warfare, which—if I may say so as a soldier—are far more difficult than those with which my brother officers of the Navy have to deal, will tend, owing to aerial developments, to approximate more closely to those of naval operations. I may say that I look forward to this with considerable satisfaction. We shall still have the enormous strains of mobilization, of supply difficulties, of lines of communication, of weary legs, but the "fog of war," the "hill" behind which Wellington could not see, will, to a certain extent, be quietly and quickly removed.

Jackson said that "to mystify, mislead, and surprise his enemy is a commander's great object in war." Would such a move as Blücher's from Ligny to Waterloo now be possible? The "fog of war" was about Napoleon. His plans were upset. Again, at Mukden, the Japanese caused the Russians to think their right flank would be turned. Reserves were hurried east to counteract the expected movement. Countermarching westwards, they could only be thrown in piecemeal against the true Japanese flank attack. At the time of Mukden the Russians were gradually drawing on their large reserve strength in Europe and becoming adequate to their task; the Japanese were almost at the end of their tether. How



Lieut. Waldron, with Lieut. Bowden Smith as passenger, in the Army Maurice Farman No. 215, about to start from Hounslow Heath for Farnborough recently. In the right-hand photograph, it will be noticed, the propeller is just being swung.

Photos by C. Keith Robinson.

might the world's history have been altered had the Russians, possessing command of the air, and locating the actual movements of the Japanese reserves, met flank attack with outflanking movement?

Owing to the fear of moving troops in a wrong direction, and having to counter-march them, there will, I think, be a tendency both in the strategical and tactical stages for commanders to await the reports of their aerial reconnoiters before deciding what to do. Preliminary orders will be issued and confirmed or altered in accordance with the results of reconnaissances. As the strategical merges into the tactical phase, so the character of the reconnaissance work will be modified. Certain long-distance flights will still be advisable to discover possible flanking and reserve movements, but the greater number will consist of short flights to ascertain the tactical position and place the information *immediately* in the hands of the commander.

But can both sides rely upon obtaining such aerial reports?

So far the results of aerial work have been to do almost entirely with reconnaissance. In future it is perhaps unfair to assume that one side will have aircraft and not the other. How much will be possible while the enemy is also in possession of an aerial squadron? Neither Tripoli nor the Balkans is a guide. The Italians had the air to themselves. The Allies also have been free from interference, except that a good deal of shooting has been done from the ground.

**Command of the Air.**—General Grierson has told us that war is impossible without command of the air. I am glad that this statement has caused many people to pause and think. But, if I may say so, though I agree with General Grierson with reference to the war of a few years hence, as regards that of to-day I am not quite so certain. I even hold that command of the air can never really be of the same nature as command of the sea. Neither can the same extent of strategical or tactical freedom in the area of operations be obtained, which might result from the vigorous use of good cavalry.

At sea and on land there are only two dimensions. In the air, the third (climbing) is the difficulty. It may, of course, be overcome. We have the precedent of naval evolution from galley to Dreadnought. Weight and speed, the problems of naval designers for centuries, are those of aircraft engineers to-day. The enormous strides which aircraft have made during the last three or four years will, I feel sure, be far greater in the near future.

Nevertheless, I feel that the third dimension is a severe stumbling-block. A fighting machine with its passenger, gun, ammunition, and possibly light armour is a heavy machine. Every attribute is affected. It cannot, for some time, be as fast or easy to handle as an unarmed craft. It will climb more slowly, cause more strain on the pilot, and land with less certainty of remaining whole. The difficulties may be circumvented. Many clever designers are working on the problem of an efficient fighting aeroplane.

It is sometimes argued that, possibly, it is most advisable at present primarily to develop the number of high-speed machines and the training of flyers to handle them. For the time being it would certainly seem that the fast scouting machine will have various advantages over the heavier type, with the result that, if both sides use it, both sides will know a great deal as to what the opponent is doing. If both sides also have fighting machines, the side upon which this fact has the least moral effect will have an important advantage. A little fighting in the air will, I think, have a far-reaching deterrent effect on the moral of the aerial forces of the losing side.

Military aviation is and must be dangerous. Those who take it feel its enormous possibilities for success to their side. They accept its risks. The aircraft of one side will be imbued with greater staying powers, greater determination to fight. This side must be ours. It is this spirit which, creating moral ascendancy, always wins on land or sea. It will do so in the air.

Thus, again, as usual, we come to the man, the numbers of him available, his patriotism, self-sacrifice, and training. The indications point, then, to two lines of action being attempted by aircraft in war. The results of reconnaissance work to date demonstrate that each side must attempt not only to gain information, but also to frustrate similar hostile effort. Certain aircraft will be employed purely for scouting purposes, others in fighting off the opposing aeroplanes and airships. The attempt to obtain command of the air will probably take place during the strategical concentration, and before land hostilities have commenced. It is improbable that superiority once gained will be much affected by fresh machines being sent to the front; the moral effect accruing from original physical success in the air will be too great. The side which loses command of the air will labour under all the disadvantages of defensive action.

**Effect of aviation on employment of various arms.**—There has been much discussion as to the effect of aviation on the employment of the various arms. Infantry is, of course, the arm upon which ultimate success depends. Aviation takes its place with its

great auxiliaries. Its alliance is closest with cavalry, and it affects the action of the masses of an army because it influences the uses to which cavalry is put.

Those anxious to reduce expenditure, argue that as aircraft can reconnoitre well, the value of cavalry has ceased to exist. This, I think, is quite unsound. Aircraft will aid and save the cavalry much unnecessary work. Cavalry on its side can help aircraft in many ways. The commander will be fortunate who has the most actively co-operating, highly-organised, equipped, and trained cavalry and air services. An instance of the value of joint action was afforded during the last manoeuvres when a patrol discovered the outpost line of a division, and an aeroplane its transport, and thus, though it was not exactly located, the approximate position of the main body.

The value of information is in proportion to the speed with which it is handed in. Under reasonable conditions of weather and country, a general can now, within three hours and a half, expect a report as to the approximate strength, formation, and direction of movement of the enemy, if he is within an 80-miles radius. A similar result would take officers' patrols sent out from the strategic cavalry at least three days, while the prospects of acquiring the information would be less. Tactically, the aeroplane is ready to undertake a reconnaissance of, say, three hours' duration, whether to obtain information of the enemy's position and movements, to ascertain the nature of the ground to the front, flanks and rear of a position, and to find suitable targets for the artillery.

It will help in the service of inter-communication, in the co-operation of all arms, and also to supplement the telegraph and telephone services in obtaining news of what is happening during a battle.

Moltke's maxim of "March dispersed, fight concentrated," will be aided, a too early deployment and its attendant loss of strength be obviated. The reports of aircraft will afford a degree of security, a saving of officers, men and horseflesh, in anxiety and strain on the commander, in mental wear and tear of the infantry and artillery. A weaker cavalry, better helped by its aircraft, may locate an enemy's cavalry, surprise and fight him on ground best suited to itself, and thus clear the way for the infantry main columns. The cavalry will be available to help the infantry in the decisive battle.

When opposing troops are close together, aircraft will probably be detached to work with units, such as divisions, in order that the information may reach the hands of the subordinate commanders immediately concerned as rapidly as possible.

Lastly, we must always remember the great gain in moral which the side with the best air service will obtain. Nevertheless too much reliance must not be placed on aircraft. The impossibility of work in fog, at night and in high winds must be borne in mind. Further the aircraft reconnaissance is essentially a rapid one. It passes and returns, its field of observation is not very detailed. Small bodies of troops will probably quickly learn how best to hide themselves in the nearest cover, such as woods, villages, etc.

**Recognising Aircraft.**—Both with respect to fighting in the air and to firing at them from the ground the recognising of aircraft is a difficult question. Those who are accustomed to seeing aeroplanes can often tell to which side or country they belong by their type. A reduction of the number of types used will help in this direction. Tables showing types of both friend and foe, as seen from below, will probably have to be issued to staffs and troops taking the field.

In future, possibly, aircraft will tend to develop on nationally characteristic lines in the same way as warships have done, but as yet there is very little guide even in this way. Most British and French aeroplanes are very similar. German ones are, certainly, already somewhat different and more easily recognisable. The colour of machines, except occasionally in certain lights, cannot be distinguished if they are at a height of over 2,000 ft.

These facts render it a matter of great difficulty to arrange a system of umpiring on manoeuvres, by means of which an indication may be made as to the advantage gained by one or the other side in the question of air superiority. The naval method whereby two ships speak to each other by wireless and decide any point is obviously impossible. Nor does the system of firing a rocket to indicate to an aircraft that it is out of action, and will not be allowed to continue its work for a time, seem satisfactory. Last year, at all events, our Red and Blue Aircraft had to pass one another, and it is a curious fact worth noticing that, owing to the attention of pilots and observers being concentrated purely upon obtaining information as to the position and movement of the hostile land forces, they seldom even saw each other in the air.

On manoeuvres a further condition of unreality is introduced by the fact that aircraft are seldom fired at from the ground. This is probably due to disinclination to shoot owing to difficulty in distinguishing friend from foe, lack of experience in judging heights (experiments with range-taking instruments to determine the heights



of aeroplanes have as yet given poor results); the uncertainty of effecting useful results as against disclosing one's position to the aerial observer; and the possibility of danger to friendly troops by such fire.

**Altitudes Maintained during Reconnaissances.**—The state of the atmosphere is mainly responsible for the height at which the reconnaissance of aircraft should be carried out. Observation is often difficult owing to clouds and mist, and there is sometimes a tendency to descend to dangerously low altitudes in order to ensure correct information or verify that already gained. Bullets will probably quickly right this tendency in war. I understand that the Bulgarian flyers think anything under 4,000 ft. unsafe from fire. Bullets, however, must not cause flyers to err on the side of caution when looking for information. The possibility of shrapnel is no excuse for failure. Once obtained, results cannot be too jealously guarded. Pilots must in any case endeavour to take advantage of clouds for concealment while minimising their hindrance to observation. On a clear day observations can be accurately plotted on a map from an altitude of 4,500 ft., at which height the ground seems to be moving very slowly, and reconnaissance is relatively easy.

**Pilots and Observers.**—There is no doubt that the work of piloting and observing entails heavy strain. Battling for even 20 minutes with a heavy machine through a difficult wind is an exhausting task, and commanders must study economy in the use of aircraft at their disposal. As regards wind, I think it is fair to assume that aeroplanes will be able to fly five days out of six at one time or other of the day. The same pilot and observer should always work together if possible. Speaking tubes are useful between the two. For continuous work two officers per aeroplane are advisable.

Under present conditions, and for any considerable period, even in good weather, it may be estimated that pilots and observers can only be employed for about three hours during the day, or, say 10 hours in three days. On completing his task, a pilot must, if possible, be given complete rest. If the wind is tricky, the cold intense, or there are other unfavourable circumstances, the above estimate will probably have to be reduced. A reserve of pilots, and, possibly of observers, is therefore necessary. This, however, would mean that observers will, as a rule, be officers of the Royal Flying Corps, or of other regiments, not staff officers. On the other hand, there has been found a difficulty on the Continent in obtaining really good observation officers, other than from those on the staff.

Much careful training and practice will be required whatever officer is selected. Not only is considerable experience in the air in 70 to 80 miles an hour machines necessary, but also a large and sound knowledge of military matters. The observer must know instinctively which facts are of importance and which are useless. The untrained officer is of no use. In my opinion, the best staff officers, and as many of them as possible, should be trained and kept in practice for this purpose.

**Notes on Reconnaissance.**—In strategical reconnaissance it is generally a matter of observing the enemy's main bodies. When they are in column of route it is comparatively easy to recognise their nature and to estimate their strength, while in dry weather the dust they throw up gives an early indication of their presence. The position and movements of the hostile cavalry masses, if discovered, will probably disclose the enemy's intention. In tactical reconnaissance, on the other hand, troops must be observed after they have left the roads, and they are then harder to find; it is most difficult to estimate their strength, and the results must be even more rapidly obtained and communicated. As observers on these occasions, therefore, it is advisable that staff officers skilled in the work and fully acquainted with the latest reports should make ascents from time to time, in order to gauge matters, watch for movements of reserves or reinforcements, and report immediately to their generals.

Thus, strategical reconnaissance is the easier of the two, and will generally give better and more accurate results. Here, too, however, careful and constant practice will be necessary, and indeed eventually the training of the observer will probably require even more care than that of the pilot. Over easy country, that is, when there are few but easily distinguished roads and railways, it has been found that the best results are obtained by mapping out a definite course for each aeroplane, for the pilot to find his way and the observer to confine his attention strictly to observing. But in the case of difficult country, when there are many winding small roads, it is usually better to give a definite objective and let the observer direct the pilot. Over easy country a pilot observer in a single-seater machine may be able to gather useful information, especially if it is a question of large strategical movements, but over a difficult area important results cannot be expected unless a definite objective only is given him.

**Night work.**—The questions of night marches and of the concealment of troops are of much interest to the observer. It would certainly seem that one of the results of the introduction of aircraft will be more night advances and movements either to make up for

delay occasioned during daylight, to escape notice, or for the purpose of tactical re-shuffling necessitated by the reports of the evening reconnaissance. It has been found that, even in wooded country, large bodies of troops can be seen if they are on the move. It is, of course, difficult to report their number, and if halted it is practically impossible to find them. Concealment has been proved to be possible. Various methods of hiding troops must, therefore, be studied, and may on occasion be effective in war. But if forces are to be concealed, and only move at night or in bad weather, there will be much delay. Marches and operations will be greatly impeded. In this, as in so many matters, a compromise will probably be made. It will sometimes be advisable to hide, sometimes to push on, and chance being seen. It is a question of generalship. Night marches, when troops are weary and short of food, are not popular; they entail heavy wear and tear, and if continued for long lower the fighting metal of the men. During last manoeuvres neither side did much in the way of night marches owing probably to the desire to keep the troops fresh for a final effort. If a night march is to be undertaken no preparations should be made which it will be possible for aircraft to see.

Not much has been done by aeroplanes at night, but such work may, I think, be considered one of the most important duties of airships. It is of considerable difficulty, and requires much practice and training. I am afraid, therefore, that the unfortunate soldier must not expect to be free from the baneful influence of aircraft at night. His bivouac cooking-fires—when and in what number to use them—will have to be considered, and the fact remembered that they should not be left burning in the morning.

The danger to aeroplanes attempting to land at night is still very considerable. Machines sometimes return late, however, and land when it is almost dark with the help of petrol flares.

Troops billeted in villages or towns will probably be an uncomfortable problem for the observer. It will undoubtedly be very difficult to estimate their strength.

**Handing in Information.**—Having obtained information, the greatest value must at once be gained from it. To effect this, the commander of the aircraft must be in constant touch with the General Staff. His observers should be placed in full possession of all information already gained and movements intended. An aircraft may happen to spot a hostile body in quite an unexpected locality, and, if it appreciates the situation, rightly decides to return and report this before going on to its allotted task. The freest hand possible should be allowed. It will usually be advisable to send two aircraft if the mission is a very important one.

**Selection of Landing Places.**—In selecting a new position for army or other headquarters to which aeroplanes are attached, the necessity of having a suitable adjacent landing ground should be given considerable weight. Staff officers could quite easily learn the type of ground required. Routine instructions have already been drawn up.

**Service of Intercommunication.**—Owing to the character of the country it may often be impossible for aeroplanes to land quite close to headquarters. A considerable advance has been made in methods of dropping messages, but much practice is yet required in this direction. Motor cyclists as despatch carriers are most useful. When the aircraft have inevitably to work from a point distant from



The new Cody Army 'bus at Farnborough, after it was taken over by the Government recently, and before its transference to Olympia for exhibition.

army headquarters, motor cars are used for observers personally to report to Headquarters for instructions before starting, or on return to supplement written reports by verbal information.

The question of signals from aircraft is a complex one. Lights, puffs, discs, Klaxon horns, &c., have been tried, but the results have, so far, not been entirely satisfactory.

The employment of an aeroplane for the transmission of intelligence from army headquarters to the Cavalry Division has been found to answer well.

**Wireless Telegraphy.**—The French are reported to have sent messages a distance of 50-60 miles by wireless. The difficulty of receiving owing to noise both in airships and aeroplanes has yet to be overcome, and the interference between stations also restricts its use. If used the necessity for a cipher is obvious, and only a few important messages should be sent.

**Accessories.**—Many people are astonished at the apparently extraordinary number of accessories required to keep a number of aircraft in the field—transport, spare parts, tools, sheds, mooring

masts and other absolutely innumerable impedimenta. On manoeuvres last year some 8 motor cars, 12 light tenders, 10 heavy tenders, and 8 Foden steam lorries were fully employed to keep 2 airships and 14 aeroplanes going.

May I here interject a hope that constructors will recognise our difficulties in this respect, and give all the help they can towards some degree of standardization?

**Casualties.**—During prolonged operations it will be a matter of great difficulty to maintain more than 50 per cent. of machines in working order, and even this will necessitate a great quantity of immediately available spare parts, and a high degree of training in all concerned. It would, I think, seem probable that no aeroplanes or engines, and few pilots and observers will last more than three or four months on active service. Efficient and sufficient repair lorries are essential, though present experience points to the fact that first-aid repairs can only be of the character of replacing damaged parts. More serious damage must be repaired at the Flying Depot at the advanced base.

A considerable source of wastage will probably lie in the fact that engine failure will have an inconvenient habit of occurring when a machine is securing its very best information over hostile country. Even the Royal Aircraft Factory cannot help us under these circumstances. The best remedy lies with engine manufacturers, and it is in this direction we hope for the next great step.

**Sheds.**—Sheds, if used, require a great deal of transport and personnel. Actually, many aeroplanes can remain out at night for short periods, if some sort of cover is provided. Sheds will probably only be kept for overhaul purposes. If, however, a shed could be designed which is sufficiently light to permit of one per aeroplane to be carried without prohibitive transport, the efficiency of the machines and their detachments would undoubtedly be much increased. The method is practicable to use the present sheds, but only to move the field base every three or four days. The disadvantages of this procedure are—that the field base will probably not always be with army headquarters as it should be; there may be a tendency to loss of touch, and to the waste of valuable time morning and evening. The weight of airship sheds, of course, renders them quite prohibitive; mooring masts and a prayer for good weather have to be put up.

**Transport.**—Even if sheds are not carried, transport (with its own complement of spares) is essential also, to permit of the field bases being moved to points convenient to the landing places of the aeroplanes, as, otherwise, valuable time will be wasted in the aeroplanes having to go some distance to the rear for overhaul, supplies of petrol and oil, food for the men, &c.

**Personnel.**—The technical personnel at the field bases requires a high degree of training (in addition to a large proportion of physical and mental steel), and must be in sufficient numbers to provide reliefs. The bases have frequently to be moved by day and the overhaul of aircraft to be carried out by night.

Now, please let me say a few words with reference to the types of aircraft which I consider are required immediately, then, well I am going to dream for a moment!

To sum up the conclusions to which the many considerations I have tried to place before you this evening lead me, I think we want:

*First*, for strategical work, a single-seater scout aeroplane with a speed of 90 miles an hour, a landing speed of half that figure, a very high rate of climbing, and a petrol capacity of say 300 miles. Good view is also essential.

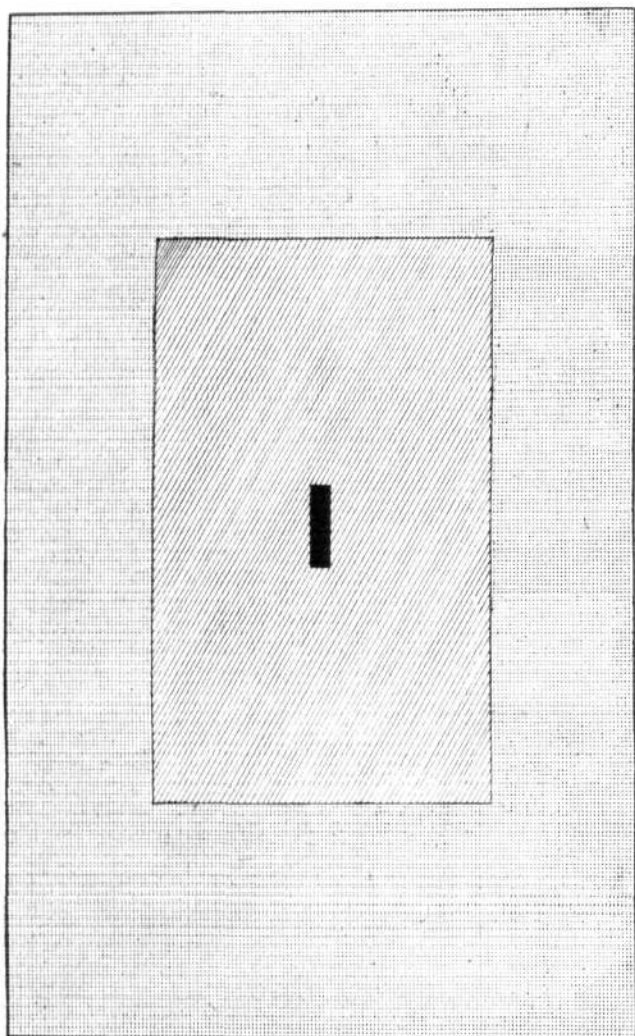
*Second*, a two-seater with speeds of 80 and 40 and 200 miles tankage; carry a light weapon, be a good climber, and be capable of landing on bad ground. Good view.

*Third*, a two-seater fighting machine with speeds of 70 and 40, to carry a gun, ammunition, light armour, and petrol for 200 miles. Again of good climbing powers.

*Fourth*, a semi-rigid airship of about 250,000 cubic ft. capacity, a speed of 55 miles an hour, keep the air for at least six hours. To carry a crew of eight, a light gun, wireless, searchlights.

We still in England are rather apt not to recognise the capabilities of airships. They have not yet attained to really great speed, but their range of action is very large, observation is easy from them, they can hover silently, carry light armament, drop bombs or explosives, they can fly in quite strong winds and rise at a rapid rate. The answer to such vessels other than meeting like with like is at present difficult to see. They are a very formidable weapon. It is an unwise satisfaction to shirk such realities.

The types I have mentioned are those wanted now. I dream, in the not far distant future, of scouting aeroplanes of 120 miles an hour; fighters to carry pilot and assistant, gunner and observer at a speed of 100 miles; weight-carriers to transport troops, rations and equipment ten or twelve at a time a distance of 30 miles and make five trips a day. Four hundred of these and some twenty to twenty-four thousand men are landed a double march ahead, with no weariness of the flesh, but rather physically and mentally braced up by a pleasant journey. The navies of the world—I am sorry



In connection with our suggestion in the leader this week to the effect that the present time is an excellent opportunity for municipalities in the Eastern Counties to offer airship sites for use by the Naval wing of the Royal Flying Corps, we give diagrammatically above some idea of the sort of site that might be useful. In the centre of the diagram is a small black rectangle representing the airship shed, and around it is the manoeuvring ground which ought to measure about 4,000 feet in its greatest dimension and about 2,500 feet across. A very important point in connection with the locality of an airship shed, however, is that there should be sufficient air space all round the field, and the outer rectangle in the diagram illustrates an area of about 800 acres over which there should be no tall buildings, chimneys, or other obstructions interfering with the navigation of the atmosphere. It is important, of course, that such freedom should be maintained for all time—a case of “ancient lights” with a modern meaning—and this is where the *esprit de corps* of local authorities could be so extremely useful.



for them—but, in my dream, they have somewhat to relinquish their present proud position, their *role* is that of floating defence, the air service—built up from joint army, navy and civilian foundations—is in the foremost line; fortresses, arsenals, dockyards, Government offices, factories of war material, are protected from the air by an elaborate system of . . . I don't think I will tell you that yet.

How extraordinarily interesting it all is.

**Dissemination of Information.**—But, for England to maintain her political weight in the world, these possibilities, though at present still dreams, must be looked into, worked at, grappled with until the Army and Navy and public understand at least their dangers.

We are so slow at taking up a new thing. Is it that our national imagination is sluggish—that we are wanting in mental alertness?



#### A Busy Week at Hendon.

ON Monday last week Mr. F. McClean was out on his new 70-h.p. Short hydro-aeroplane, on which he arrived late on Sunday evening from Eastchurch with Lieut. Gregory.

On Tuesday, M. Brindejone de Moulinais arrived from Paris on a 50-h.p. Morane-Saulnier, at 1.55, having made three stops, the last being only a few miles away from the aerodrome, to pick up his bearings. M. Brindejone had intended returning across the water on Wednesday to Brussels, but learning that the weather down on the coast was not good, he waited a more favourable opportunity. In the afternoon J. Valentine came to the London Aerodrome, and a private match was arranged to be run there and then between M. Brindejone de Moulinais on the Morane-Saulnier, J. Valentine on his 70-h.p. tandem Blériot, and R. T. Gates on the Grahame-White *brevet* 'bus. Brindejone and Valentine started just level, but gave the Grahame-White 'bus 1½ laps in 4. The result was an easy win for Brindejone. F. McClean was invited to compete in this impromptu race, but preferred to do his laps alone. With its 62 ft. span the Short is not quite a pylon racer.

On Thursday quite an enthusiastic crowd visited the London Aerodrome. The schools were all quite busy. Brindejone de

The phrase, "The slowness of great strength," is out of date. Strong in courage and knowledge, quick and certain in action, must take its place. The Aeronautical Society is doing all it can to help. But many more channels for the rapid dissemination of knowledge on aerial subjects are required. If I may say so, I think that if the Royal Flying Corps had done nothing else (and it is doing a good deal), the fact of its having brought the two services into joint action would be quite sufficient justification for its existence.

The public must now be brought into partnership. In France the aerial services have the solid backing of consistent popular opinion. We cannot do without it in this country. With it we can and will take the foremost place in the air as now on the sea. All rests eventually on the public. It must not be allowed to shirk its responsibility.

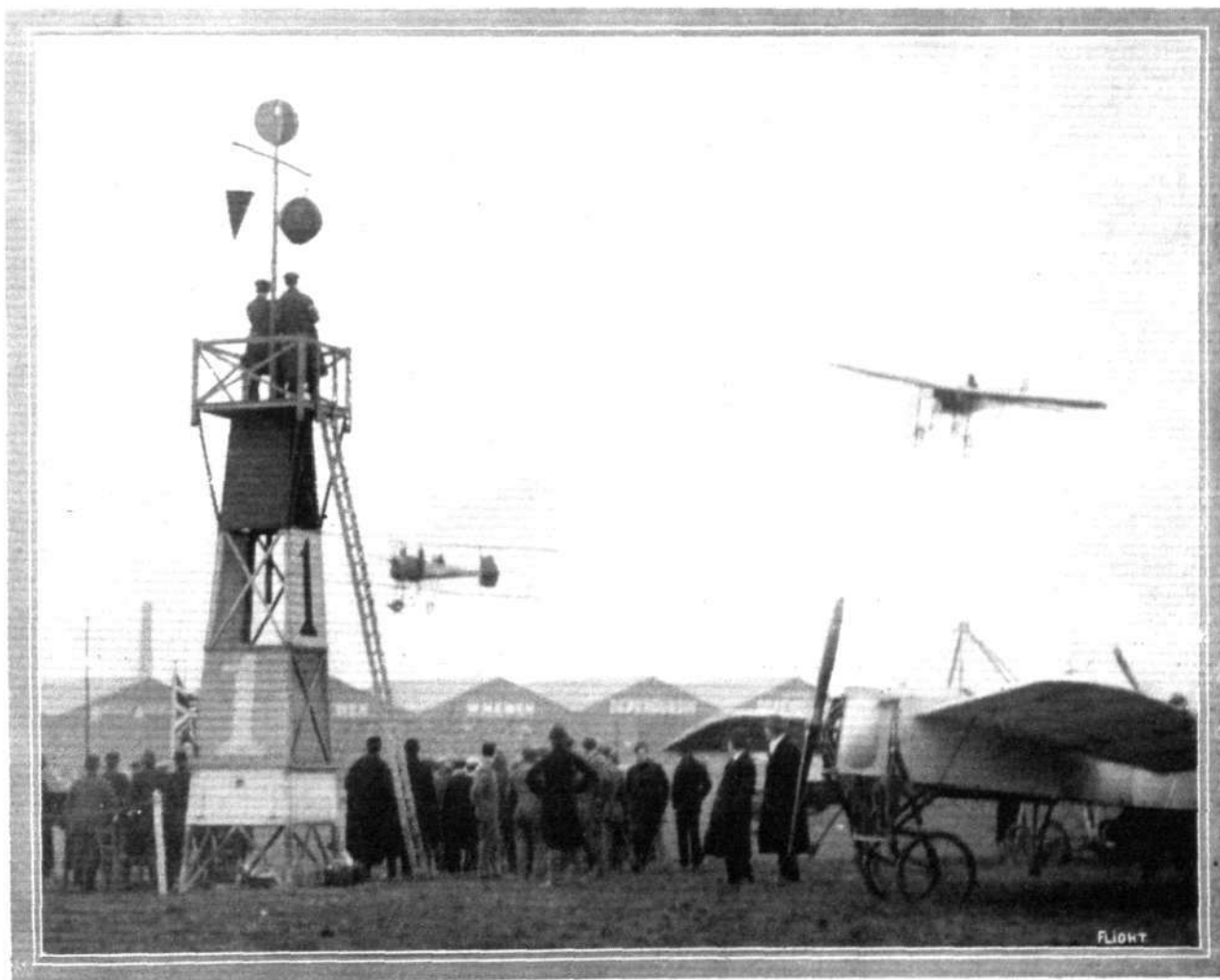


Moulinais left for Dover and Calais at 1 o'clock, and had a favourable wind; a message was received later in the afternoon from Dover that St. Margaret's Bay reported the Morane as having passed over there at a moderate altitude at 2.35, and half an hour later the *Daily Mail* telephoned through that Brindejone had landed at Calais as he intended doing—Hendon to Calais in under two hours, and without stop. The Breguet, with Vitry up, was taking a lot of exercise during the afternoon, and flying well.

It was hoped that Pickles would be out on the Handley Page, but owing to a smash in the morning he will not be out for a while; curiously enough his smash occurred in almost exactly the same place as when Desmond Arthur had a tumble with the same machine.

On Sunday a postcard was received by Mr. Gates from M. Brindejone de Moulinais, saying his travels had reached a successful end, and expressing his pleasure with his visit to Hendon.

On Friday the schools were busy, and Lieut. Spencer Grey was at the Deperdussin sheds ready to take delivery of the two new machines for the Admiralty. In the afternoon some of the competitors for the Royal Aero Club Model Competition arrived with their models, and made preliminary tests prior to the competitions timed to commence at 9 o'clock on Saturday morning.



Gustav Hamel, on his Blériot, and M. Richet, on the Breguet, during the race at Hendon for the Aero Show Trophy.

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

The Annual General Meeting of the Members of the Royal Aero Club of the United Kingdom will be held at 166, Piccadilly, London, W., on Wednesday, March 19th, 1913, at 4 p.m.

## AGENDA.

1. To elect Hon. President, Vice-President and Council for the ensuing year. The following are recommended by the Committee for re-election:—

*Hon. President:* His Grace the Duke of Argyll, P.C., K.T., K.G., G.C.M.G., G.C.V.O. *Vice-President:* Field-Marshal The Rt. Hon. Earl Roberts, K.G., K.P., V.C., G.C.B., G.C.S.I., G.C.I.E., O.M. *Council:* S.A.I. Prince Roland Bonaparte (President F.A.I.); H.S.H. Prince Blucher von Wahlstatt; His Grace the Duke of Sutherland, K.G.; The Rt. Hon. The Earl of Hardwicke; The Rt. Hon. The Earl of Lonsdale; The Rt. Hon. Lord Howard de Walden; The Rt. Hon. Lord Kinnaird, F.R.G.S.; The Rt. Hon. Lord Suffield, P.C., G.C.V.O., K.C.B.; The Rt. Hon. Lord Montagu of Beaulieu; The Rt. Hon. Sir Edward Seymour, P.C., G.C.B., O.M., G.C.V.O.; Admiral The Hon. Sir Edmund Fremantle, G.C.B., C.M.G.; Count Henry de la Vaulx (Vice-President Aero Club de France); Sir David Salomons, Bart.; Sir Norman Lockyer, K.C.B., F.R.S.; Professor Sir William Crookes, O.M., F.R.S.; Sir Hiram S. Maxim; The Rt. Rev. Bishop Welldon; Martin Dale.

2. To announce result of ballot for Committee.

3. To confirm rules.

[A set of new Club Rules will be submitted to the Members at the General Meeting for confirmation. The Committee do not propose to incur the expense of sending a print of the new rules to every member of the Club, but copies will be available at the meeting, and any member can obtain a print beforehand on application to the Secretary.]

## Committee.

The following members have been proposed for the Committee:—

*Griffith Brewer.	Major F. Lindsay Lloyd.
Ernest C. Bucknall.	*F. K. McClean.
*Captain Bertram Dickson.	*Alec Ogilvie.
*John D. Dunville.	*Mervyn O'Gorman.
*Col. H. C. L. Holden, C.B., F.R.S.	*C. F. Pollock.
*Prof. A. K. Huntington.	Major B. Baden Powell.

The names of the retiring members of the Committee are indicated by an asterisk.

Members are reminded that a ballot paper for the election of nine candidates to seats on the Committee of the Club will be forwarded to them at least seven days before the date of the Annual General Meeting.

## Committee Attendances during the Past Year.

### Executive Committee. Meetings held, 24.

Griffith Brewer	21	Alec Ogilvie	18
Col. J. E. Capper, C.B., R.E.	6	Mervyn O'Gorman	7
G. B. Cockburn	20	C. F. Pollock	24
Capt. Bertram Dickson	8	Sir Charles D. Rose, Bart., M.P.	18
John Dunville	2	Com. C. R. Samson, R.N.	6
Capt. J. D. B. Fulton, R.F.A.	8	A. Mortimer Singer	9
Col. H. C. L. Holden, C.B., F.R.S.	15	Col. The Marquess of Tullibardine, M.V.O., D.S.O., M.P.	2
Prof. A. K. Huntington	18	R. W. Wallace, K.C.	21
F. K. McClean	18		
J. T. C. Moore-Brabazon	8		

### Public Safety and Accidents Investigation Committee. Meetings held, 20.

A. E. Berriman	15	Alec Ogilvie	16
G. B. Cockburn	20	Mervyn O'Gorman	10
Capt. J. D. B. Fulton, R.F.A.	2	Sir Charles D. Rose, Bart., M.P.	2
Col. H. C. L. Holden, C.B., F.R.S.	20	Maj.-Gen. R. M. Ruck, C.B., R.E.	13
J. H. Ledebor	6	Com. C. R. Samson, R.N.	3
F. K. McClean	11	Staff-Surgeon H. V. Wells, R.N.	3
W. O. Manning	13		

### Competitions Committee. Meetings held, 7.

F. P. Armstrong	1	Capt. A. E. Davidson, R.E.	3
E. C. Bucknall	6	Col. H. C. L. Holden, C.B., F.R.S.	6
G. B. Cockburn	6		

Prof. A. K. Huntington	5	N. C. Neill	4
Major F. Lindsay Lloyd	6	Alec Ogilvie	5
F. K. McClean	5	Mervyn O'Gorman	4
J. T. C. Moore-Brabazon	3	E. V. Sassoon	5

## Committee Meeting.

A meeting of the Committee was held on Tuesday, the 4th inst., when there were present: Sir Charles D. Rose, Bart., M.P., in the Chair, Mr. Griffith Brewer, Col. J. E. Capper, C.B., R.E., Col. H. C. L. Holden, C.B., F.R.S., Prof. A. K. Huntington, Mr. F. K. McClean, Mr. Alec Ogilvie, Mr. Mervyn O'Gorman, Mr. C. F. Pollock, Com. C. R. Samson, R.N., Mr. A. Mortimer Singer, Mr. R. W. Wallace, K.C., and the Secretary.

**New Members.**—The following new members were elected:—James Barnes, Sub-Lieut. T. C. M. Bellairs, R.N., Louis Coatalen, G. G. Hann, E. W. Mennecke, William H. Morris, E. P. Raynham, Lieut. A. B. Thompson, Major Hugh M. Trenchard, Lieut. J. B. Waterlow, R.N., and Jack P. Williams.

**Aviators' Certificates.**—The following Aviators' Certificates were granted:—

434. 2nd Lieut. R. A. Archer, R.F.A. (Bristol Biplane, Bristol School, Brooklands).
435. 2nd Lieut. L. G. Hawker, R.E. (Deperdussin Monoplane, Deperdussin School, Hendon).
436. 2nd Lieut. D. J. McMullen, R.E. (Caudron Biplane, Ewen School, Hendon).
437. Lieut. C. E. H. Rathbone, R.M.L.I. (Avro Biplane, Central Flying School, Upavon).

**Mortimer Singer Prize.**—The rules drawn up by the Competitions Committee were approved. (The rules appear elsewhere in the Official Notices.)

**Hon. President, Vice-Presidents and Council.**—It was unanimously resolved to recommend to the Annual General Meeting the re-election of the Hon. President, Vice-Presidents and Council. (See names under notice of General Meeting.)

**Scrutineers of Committee Ballot.**—The following scrutineers of the Committee Ballot were appointed:—Mr. J. Stewart Mallam (Andw. W. Barr and Co., Chartered Accountants), and Mr. F. Harold Sully (J. and A. W. Sully and Co., Chartered Accountants).

**War Office Committee on Accidents to Monoplanes.**—The result of further investigation made by the War Office Committee in connection with the fatal accident to Lieuts. Hotchkiss and Bettington, at Wolvercot, near Oxford, on September 10th last, has been to confirm the conclusions contained in the report of the Public Safety and Accidents Investigation Committee of the Royal Aero Club. The request of the War Office Committee to reprint the Report of the Royal Aero Club as an appendix to their report was unanimously agreed to.

**Loan of Glider to the Science Museum.**—It was decided to lend the Chanute type glider for exhibition in the permanent collection of the Science Museum, South Kensington, for a period of twelve months.

**Aviation Benevolent Fund.**—The Committee considered the question of instituting an Aviation Benevolent Fund, and a Sub-Committee was appointed to formulate a scheme and submit to the next Committee Meeting.

## The Mortimer Singer £500 Prize.

(Under the Competition Rules of the Royal Aero Club.)

Mr. A. Mortimer Singer has presented to the Royal Aero Club a sum of £500 for an aviation competition on British machines flown by British subjects.

The following are the rules governing the competition:—

1. Both the entrant and pilot must be British subjects.
2. The complete machine, and all its parts, must have been entirely constructed within the British Empire, but this provision shall not be held to apply to raw material.
3. The prize shall go to the entrant.
4. The competition shall be in the first instance open from May 1st until October 31st, 1913, both dates inclusive.
5. The winner shall be the entrant of the aeroplane which shall first accomplish the following series of flights, on a course from a point on the land to a point out at sea not less than five miles distant in a direct line, but the latter point shall not be less than one mile from any shore.

The competitor shall make six out and home flights between the



two points, alighting on arrival at each point, coming to rest and remaining until the observer gives the signal to re-ascend.

6. An altitude of at least 750 ft. must be attained on each journey from point to point, and on one occasion during the test an altitude of 1,500 ft. must be reached.

7. A passenger must be carried throughout the flights, and the combined weight of competitor and passenger must be not less than 264 lbs., any deficiency in weight being made up by means of ballast. Pilots or (and) passengers may be changed during the test.

8. Any landing contrivance may be used, but it must form part of the design of the aeroplane and not be merely a temporary or makeshift addition.

9. All oil, fuel and spare parts required must have been carried on the aeroplane from the start of the test.

10. The pilot and passenger will not be permitted to avail themselves of any other person's assistance either for starting, repairs, or other purpose throughout the test.

11. The total duration of the series of flights shall not exceed five hours; and shall take place between sunrise and sunset.

12. Competitors may select their own course, which must be approved by the Royal Aero Club before any flights are made, in this competition.

13. The flights must be observed at each point by the officials appointed by the Royal Aero Club.

14. Entries must be made in writing to the Royal Aero Club seven days prior to any attempt being made, and must be accompanied by a fee of £10, half of which will be refunded to the competitor should the Royal Aero Club decide that a genuine attempt has been made. A competitor must further deposit a sum of £10 on account of expenses which may be incurred by the Club. Any balance not so expended will be refunded.

The entrant must provide suitable accommodation for the observer, and if necessary a mark at the sea point.

15. Should any questions arise at any time after the date of entry, as to whether a competitor has properly filled the above conditions, or should any other question arise in relation to them, the decision of the Royal Aero Club shall be final and without appeal.

16. A competitor by entering, waives any right of action against the Royal Aero Club or Mr. A. Mortimer Singer for any damages sustained by him in consequence of any act or omission on the part of the officials of the Royal Aero Club or Mr. A. Mortimer Singer, or their representatives or servants, or any fellow competitor.

17. The aeroplane shall at all times be at the risk in all respects of the competitor, who shall be deemed by entry to agree to waive all claim for injury either to himself or his aeroplane, or his employees or workmen, and to assume all liability for damage to third parties or their property, and to indemnify the Royal Aero Club and Mr. A. Mortimer Singer in respect thereof.

18. The Royal Aero Club reserves to itself the right to add, to amend, or to omit any of these rules should it think fit.

#### Royal Aero Club of the United Kingdom.

CERTIFICATE OF PERFORMANCE. NO. 1.

(Under the Competition Rules of the Aero Club).

*Flight of Aircraft Uncontrolled by Pilot.*

THIS IS TO CERTIFY that on the 11th December, 1912, a Dunne biplane was entered for trial by the Blair Atholl Aeroplane Syndicate, Ltd., the object of the trial being to show the behaviour of this biplane when flying without being controlled in any way by the pilot.

#### Particulars of Aircraft—

Type: Dunne Biplane, two seater. Overall span 46 feet.

Total Lifting Surface 552 square feet.

Motor: 50-60-h.p. 4-cylinder Green.

Controls: Hand levers only, no automatic controlling mechanism, gyroscopic, or otherwise fitted.

*Description of the Trial.*—The trial took place on Salisbury Plain on the 16th and 17th December, 1912. On the first flight on the 16th the wind was blowing in gusts up to 20 m.p.h., and the pilot ceased to manipulate all controls for a period of 1 min. 5 secs. whilst flying over a spot where irregular disturbances of the air were, from the actual experience of the official observer, known to prevail. The pilot only resumed operation of the controls at the request of the official observer, who was the passenger in the aircraft.



#### Brindejonc des Moulinais Returns Home.

AFTER only a two-days' stay in London, Brindejonc des Moulinais returned to France on his Morane monoplane, of course, on Thursday of last week. He left Hendon about one o'clock, and in about an hour reached Dover, where he rested for three quarters of an hour. He then made an exciting crossing of the Channel, as half-way over he was trapped in a fog. Fortunately, he saw a fishing smack, and the crew signalled the direction of Calais,

During this period, the aircraft was quite stable laterally, there being an absence of both quick jerky movements and periodical rolling. The apparent effect of a gust was to cause the aircraft to turn steadily to the right or left.

The second flight on the 17th was made under slightly better weather conditions, and the pilot ceased to manipulate all controls for two periods of one minute each. During one of these periods the controls were locked, and the aircraft described a complete circle of 360°, banking of its own accord at the correct angle. There was no feeling of side wind on the face of the Official Observer, thus showing absence of sideslip either inwards or outwards.

(Signed) C. D. ROSE, *Chairman.*

(Signed) HAROLD E. PERRIN.

February 4th, 1913.

166, Piccadilly, London, W.

#### International Aero Exhibition.

**Demonstration of Models.**—The practical demonstration of the models exhibited at the recent International Aero Exhibition took place at the London Aerodrome, Hendon, and the Welsh Harp, Hendon, on Saturday last, when the prizes amounting to £50 offered by the Royal Aero Club were competed for. The Judges have so far been able to make the following awards:—

##### CLASS 1.—Power-driven Models.

First Prize, £12 ... H. H. Groves.

Second Prize, £5 ... L'Essor Français, Paris.

##### CLASS 2.—Models Driven by any other Motive Power.

(a) Rising from the ground:—

First Prize, £5 ... L. H. Slater.

Second Prize, £2 ... Bracketed as equal—

Third Prize, £1 ... G. P. Bragg-Smith and James McBurnie.

(b) Launching by hand:—

First Prize, £2 ... A. F. Houlberg.

Second Prize, £1 ... J. E. Louch.

##### CLASS 3.—Hydro-aeroplane Models.

First Prize, £5 ... W. J. Williams.

Second Prize, £2 ... G. P. Bragg-Smith.

The judges will make awards in Class 4, Scale Models, and Class 5, Model Aero Motors, in the course of the next few days.

The Royal Aero Club desires to record its thanks to the following gentlemen who kindly acted as judges in connection with the model section of the International Aero Exhibition:—

Col. H. C. L. Holden, C.B., F.R.S. (Chairman), R. M. Balston, A. E. Berriman, Col. J. D. Fullerton, T. O'B. Hubbard, V. E. Johnson, J. H. Ledebor, H. F. Lloyd, F. K. McClean, A. Ogilvie, Com. C. R. Samson, R.N., and A. P. Thurstan.

#### Presentations to the Club.

Mr. Charles Davis has kindly presented to the Club a fire screen decorated with interesting old prints of balloon ascents.

Mr. Patrick Y. Alexander has also kindly presented the Club with the latest type of barograph.

#### ANNUAL DINNER.

The ANNUAL DINNER will take place at the ROYAL AUTOMOBILE CLUB, PALL MALL, S.W. (by kind permission), on THURSDAY, MARCH 13th, 1913, at 7.30 for 8 o'clock.

(Since circularising the members it has been found necessary to alter the date from March 6th to 13th.)

In order to facilitate the arrangements, Members are requested to notify the Secretary as early as possible, if it is their intention to be present, and at the same time give the names of their Guests, if any.

Members may be accompanied by Ladies.

Tickets (exclusive of Wines and Cigars)—15s. each.

The following prizes won during the year will be presented:—

The British Empire Michelin Trophy No. 1, to H. G. Hawker.

The British Empire Michelin Trophy No. 2, to S. F. Cody.

An entertainment will take place after the Dinner.

166, Piccadilly.

HAROLD E. PERRIN, Secretary.



where he safely landed after 45 mins. flying. The next day he started for Brussels, and landed at the Berehem aerodrome after a trip of 1 hr. 50 mins. The last stage of the journey to Paris was commenced at 1.20 p.m., and at 2.43 p.m. a stop was made at Compiègne. Half an hour later the machine was once more in the air, and at 3.50 p.m. Villacoublay was safely reached. In three days the Morane-Saulnier machine, which has a 50-h.p. Gnome motor and a Chauvière-Intégrale propeller had covered 1,040 kilom.

# BRITISH REGULATIONS FOR AIRCRAFT.

ON Wednesday, this week, the regulations were issued by the Government, under the New Aerial Navigation Acts, the main provisions being settled weeks ago by the Committee of Imperial Defence. They are extremely far-reaching and drastic, but of course, the one great weakness exists at present, our inability to enforce them. We hope in the new Estimates provision will be forthcoming that this anomaly may speedily be set right. The following is the full text of the regulations:—

## ORDERS MADE BY THE SECRETARY OF STATE, UNDER THE AERIAL NAVIGATION ACTS, 1911 AND 1913.

IN pursuance of the powers conferred on me by the Aerial Navigation Acts, 1911 and 1913, I hereby make, for the purposes of the safety and defence of the Realm, the following Orders:—

**I. Prohibited Areas.**—I prohibit the navigation of aircraft of every class and description over the areas described in Schedule I to these Orders (hereinafter referred to as "Prohibited Areas").

**II. Portions of the Coastline Prohibited to Aircraft from Abroad.**—I prohibit the navigation of aircraft coming from any place outside the United Kingdom over the whole of the coastline of the United Kingdom and the territorial waters adjacent thereto, except such portions of the coastline with the territorial waters adjacent thereto as are described in Schedule II to these Orders.

**III. Landing Areas for Aircraft from Abroad.**—I prescribe the areas mentioned in Schedule III to these Orders (hereinafter referred to as "Prescribed landing areas") to be the areas within which aircraft coming from any place outside the United Kingdom shall land; and I prohibit the navigation of such aircraft over any other part of the United Kingdom until after they have landed in one of the said landing areas and have complied with the conditions hereinafter set forth.

### Aircraft from Abroad.

**IV. The Conditions Imposed on Aircraft from Abroad.**—I prescribe the following conditions to be complied with by aircraft coming from any place outside the United Kingdom:—

The person in charge of an airship, before commencing a voyage to the United Kingdom, shall apply for a clearance to a duly authorised British Consular officer in the country from which the voyage is to be commenced, and he shall not enter the United Kingdom until at least 48 hours after such consular officer has issued the clearance to him.

In the application (of which three copies must be supplied) he shall state accurately the following particulars:—

Name and registered number (if any) of airship.

Type of airship.

Name, nationality, and place of residence of the owner, of the person in charge, and of every member of the crew, and name, profession, nationality, and place of residence of every passenger (if any).

Nature of cargo (if any).

Approximate time of departure.

Place of departure.

The intended landing place in the United Kingdom (which must be within one of the prescribed landing areas).

Proposed destination.

Object of voyage.

No change shall be made in the arrangements stated in the application unless either notice has been given to the Consular officer before the clearance is issued or his consent in writing is afterwards obtained.

A person in charge of an aeroplane shall, before commencing a voyage to the United Kingdom, send notice to the Home Office stating the proposed landing-place, which must be within one of the prescribed landing areas; the approximate time of arrival, and his own name and nationality; the notice, which may be sent by letter or telegram, must be despatched so as to reach the Home Office at least eighteen hours before he enters the United Kingdom; no person in any aircraft on entering the United Kingdom shall carry or allow to be carried in the aircraft any goods, the importation of which is prohibited by the law relating to Customs, any goods chargeable upon importation into the United Kingdom with any duty of Customs, except such small quantities as have been placed on board at the place of departure as being necessary for the use during the voyage of the persons conveyed therein, any photographic apparatus, carrier or homing pigeons, explosives or firearms, any mails.

The person in charge of any aircraft shall, on landing, report personally to the authorised officer, and in the case of an airship present the clearance to him; fill in and hand to the authorised officer an arrival report in a form prescribed. The person in charge of the aircraft shall not continue his voyage until he has obtained a permit from the authorised officer, for which a fee of £3 will be payable in case of an airship and £1 in case of an aeroplane. He shall in his subsequent voyage, unless exempted by the terms of the permit, comply with the following conditions:—

In the case of an airship, at least one British representative,

approved by the authorised officer, shall be carried in the aircraft. No photographic or wireless apparatus, carrier or homing pigeons, explosives or firearms shall be carried. No mails shall be carried. The journey shall be effected within the time and by the route specified in the permit. The pilot shall carry his certificate and shall produce it when required. The aircraft, before quitting the United Kingdom, shall descend in one of the prescribed landing areas and report to the authorised officer. If any of the terms of the permit cannot be fulfilled, owing to accident, stress of weather, or other unavoidable cause, the aircraft shall come to ground at the earliest opportunity, and the person in charge shall forthwith report by telegram to the Home Office. No exemption from these conditions shall be given except with the previous authority of the Home Office.

The term "authorised officer" means an officer appointed by a Secretary of State for the purposes of this Order. Except where the authorised officer is specified in the clearance, the person in charge of the aircraft must ascertain by telegraphing to the Home Office, or otherwise, the name and address of the officer to whom he should report.

### Naval and Military Aircraft.

**V. Foreign Naval and Military Aircraft.**—Foreign naval or military aircraft shall not pass over or land within any part of the United Kingdom, or the territorial waters thereof, except on the express invitation, or with the express permission previously obtained, of His Majesty's Government. Such aircraft shall enjoy such exemptions from the foregoing orders, and be subject to such special conditions, as may be specified in the invitation or permission.

**VI. British Naval and Military Aircraft.**—The foregoing orders shall not apply to naval or military aircraft belonging to or employed in the service of His Majesty.

**VII. British Aircraft Returning to the United Kingdom.**—The conditions prescribed by the foregoing Order No. 4 to be complied with by aircraft coming from places outside the United Kingdom shall not apply to an aircraft which commenced its voyage from and is returning to the United Kingdom provided:—

The owner, the person in charge, and crew are British subjects; Notice is given to the Home Office before or immediately after the outward voyage is made;

The return voyage is made within 30 days of the departure from the United Kingdom;

At least 18 hours' notice of the return voyage is given to the Home Office, stating the intended landing place (which must be in one of the prescribed landing areas), and the approximate time of arrival.

### Exemptions.

**VIII. Exemptions.**—The Secretary of State may for special reasons grant exemption from any or all of the foregoing orders to persons recommended for such exemptions by the Admiralty, War Office, or other public departments.

**IX. Saving.** nothing in the foregoing orders shall be construed as conferring on a person navigating an aircraft any right to land in any place as against the owner of the land or other persons interested therein, or as affecting the rights or remedies of any person in respect of any injury to person or property caused by any aircraft.

R. MCKENNA,

One of His Majesty's Principal Secretaries of State.  
Home Office, Whitehall, March 1st, 1913.

### SCHEDULE I.

#### Prohibited Areas.

Each of the places named or described in the following list, with the land and territorial waters surrounding such place, to a distance of three geographical miles in all directions from its boundary, shall be a prohibited area for the purposes of the foregoing Order

No. I:—

Kirkwall Town

Flotta Island

Thurso Town

Cromarty Ness

Invergordon Pier

Aberdeen Wireless Station

Montrose Town

Broughty Ferry Castle

Inchkeith Island

Rosyth Dockyard

Pitfiorane Park

Forth Bridge

Tynemouth, North Pier Lighthouse

Elswick Railway Station



Cleethorpes Wireless Station	Portsmouth Dockyard
Louth Railway Station	Cosham Railway Station
Wroxham Broad (Norfolk)	Fareham Railway Station
Weedon Railway Station (Northamptonshire)	Culver Cliff Naval Signal Station
Landguard Point, Bradwater (Felixstowe)	Needles Lighthouse
Parkeston Quay	Southampton Docks
Ipswich Wireless Station	Marchwood Park
Shoeburyness Church	Hurst Castle
Fobbing Church	Osmington Church
Tilbury Fort	Weymouth Pier
Purfleet Railway Station	Portland Convict Pier
Barking Creek Mouth	Turnchapel Railway Station
Waltham Abbey Railway Station	Plymstock Railway Station
Enfield Lock Railway Station	Keyham Dockyard
Chatham Dockyard	Devonport Dockyard
Teapot Hard	Saltash Railway Bridge
Chattenden Farm	Penler Point
Allhallows Church	Thorn Island (Milford Haven)
Grain Martello Tower	Pembroke Wireless Station
Sheerness Dockyard	Old Milford Railway Station
Dover Castle	St. Ann's Head
Archcliffe Fort	Barrow-in-Furness Town Hall
Lydd Railway Station	Stevenston Railway Station
Newhaven Station Harbour Jetty	Greenock Pier
Fort Cumberland	So much of Loch Long as lies north of a line drawn due east from Knap Point
Spithead: namely, the space between a line from Lee-on-Solent Pier to Wootton Point and a line from Southsea Castle to Seaview Pier	Carrickfergus Railway Station
	Grey Point
	Spike Island
	Haulbowline Dockyard

## SCHEDULE II.

## Portions of the Coastline not Prohibited to Aircraft from Abroad.

The following portions of the coastline, including in each case the seaward boundary of the places named, are excepted from the prohibition imposed by Order No. II on aircraft coming from places outside the United Kingdom:—

From Fraserburgh to the Ythan River.

From Holy Island to Newbiggin.

From Sutton (Lincolnshire) to Holkham (Norfolk).

From Stansgate Abbey, on the Blackwater, to Burnham-on-Crouch.

From Margate to Walmer.

From Rye to Eastbourne.

From Hove to Bognor.

From Bridport to Dawlish.

## SCHEDULE III.

## Prescribed Landing Areas.

The areas bounded towards the sea by the portions of the coastline specified in Schedule II, and extending in each case to a distance of five geographical miles inland.

Any person navigating an aircraft in contravention of the foregoing orders is liable on conviction to imprisonment for six months or to a fine of £200 or to both imprisonment and fine.

Any aircraft which flies or attempts to fly over a prohibited area, and any aircraft coming from a place outside the United Kingdom which flies or attempts to fly over a prohibited portion of the coastline or fails to comply with the conditions as to landing prescribed in the foregoing Order No. III is liable to be fired on in accordance with Section 2 of the Aerial Navigation Act, 1913, and the regulations made thereunder.

If any person in any aircraft is anywhere guilty of any act of espionage within the provisions of Section 1 of the Official Secrets Act, 1911, he is liable to seven years' penal servitude.

In pursuance of the powers conferred on me by Section 2 of the Aerial Navigation Act, 1913, I hereby make the following regulations.

1. The officer to give the signals and take the action mentioned in the said section shall be a commissioned officer in His Majesty's naval or military forces.

2. The signals which may be given when an aircraft flies or attempts to fly over any of the prohibited areas, or when an aircraft coming from a place outside the United Kingdom flies or attempts to fly over any prohibited portion of the coastline or fails to comply with any of the conditions as to landing prescribed by the orders made by the Secretary of State under the said Acts shall be as follows:

By day: Three discharges at intervals of not less than ten seconds of a projectile showing smoke or bursting.

By night: Three discharges at intervals of not less than ten seconds of a projectile showing red stars or red lights.

3. On such signal being given the aircraft shall immediately land at the nearest practicable spot, provided that if it be approaching or flying over any prohibited area it shall not in descending advance further towards or into the area.

4. If an airship is unable to land immediately in response to the signal owing to stress of weather, fog, breakage of machinery, or other unavoidable cause, it shall make the following signal:

By day: Show from the place where they can be most clearly seen from below a red triangular flag, together with two black balls superimposed vertically one above the other.

By night: Wave a white light, at the same time extinguishing the side-lights, and it shall, as soon as possible, land at the nearest practicable spot in the United Kingdom.

R. McKenna.

## ✱ ✱ ✱ ✱

## FLYING AT HENDON.

By now we have become used to witnessing flights at Hendon in winds that are not far short of gales, but one cannot do otherwise than remark upon the fact that similar progress is showing itself in connection with model aeroplanes. This was brought home to us very forcibly during the model competition held at the aerodrome and on the Welsh Harp waters last Saturday. It is not our intention to dwell upon this subject here—for a report will be found elsewhere—further than to remark that the weather conditions were such that, not so very long ago, the competition would have been postponed. Yet a large number of very successful flights were made, although some of the models performed "stunts" that would have made Gustav Hamel "green" with envy had he seen them.

While the model competition was in progress, at about 10.30 a.m., a biplane was seen approaching from the direction of Brooklands, and we soon made it out to be the 80-h.p. Sopwith tractor which was exhibited at the Show, and has been purchased by the Admiralty. After making a complete circuit of the aerodrome the pilot brought the machine to rest close to No. 1 pylon. We then ascertained that the pilot was Lieut. Spencer Grey, and he was accompanied by Lieut. L'Estrange Malone, R.N. At 12.30 p.m. Pierre Verrier brought out the Maurice Farman biplane and made a short flight, but the engine was not behaving as it should, so an inspection was made prior to a busy afternoon.

By 3 o'clock a fair number of visitors had turned up, and during the rest of the afternoon quite a good display of exhibition and passenger-flying was put up. About 18 flights were made altogether, about half of these being with passengers. An exciting incident occurred during one of these flights, which might have ended disastrously. Lieut. Grey had ascended on the Sopwith biplane, and had been flying for about 5 mins., when it was noticed that in putting the rudder over to make a turn, it flapped uselessly about in the wind. It was only by skilful

manipulation of the warp that the pilot managed to effect a landing, which he did without further damage. The following pilots contributed towards the afternoon's flying:—Marcel Desoutter on the 50-h.p. Gnome-Blériot monoplane; Marcus D. Manton and A. Cheeseman made numerous flights on the Grahame-White 'bus; Pierre Verrier and M. "Vitry" took up several passengers on the Maurice Farman and Breguet biplanes respectively; G. L. Temple was out on his 35-h.p. Caudron biplane; Lieuts. Porte and Gordon Bell were making test flights on a new 80-h.p. Anzani-Deperdussin monoplane, Gordon Bell making a splendid flight lasting about 10 mins. The flying was kept up until it was almost dark, the drone of the Breguet's Canton-Unne engine sounding more weird than ever in the semi-darkness.

As far as the wind was concerned, there was little improvement the next day, Sunday, 25-30 m.p.h. being the average velocity. On the other hand there was brilliant sunshine throughout the afternoon which made things much more pleasant, whilst the flying was even better than the day before. Shortly before noon M. "Vitry" started for Brooklands with a passenger on the Breguet biplane. He had a hard fight with the wind, but arrived at his destination safely, and after a brief stay returned to Hendon, taking about 14 mins. for the return trip. Later on in the afternoon, Frank McClean and a passenger left for Eastchurch on the Short biplane which he had flown over from the latter place early last week.

Other flights made during the afternoon were too numerous and uneventful to be recorded here in full, but there follows a list of the aviators, and their machines, who gave exhibitions. Lewis Turner was out twice on the 60-h.p. Anzani-Caudron biplane; Richard T. Gates, Marcus D. Manton (with passengers), and A. Cheeseman flew the Grahame-White 'bus; the monoplane was represented by Marcel Desoutter's 50-h.p. Blériot. All these pilots made numerous flights until late.

## FROM THE BRITISH FLYING GROUNDS.

### Brooklands Aerodrome.

An exceptionally interesting time was spent at Brooklands last week, every flying school being daily in full swing, some most successful trials being made with new machines.

On Friday, Lieut. Gordon Bell arrived about 3.30 p.m., from Farnborough, on a Caudron biplane fitted with a 70-h.p. Gnome, arriving at an altitude of 4,000 ft., and making a final spiral *vol plane*, the journey having taken only 18 mins. He afterwards went on to Hendon. Several fine flights were made on the same day by Mr. Manning and Mr. Raynham on the Coventry Ordnance biplane. On Saturday, Mr. Hawker took up a passenger on the new Sopwith tractor biplane bought by the Admiralty at the recent Aero Show, fitted with 80-h.p. Gnome, and carried out a fine test of one and a quarter hours, in which the machine reached a speed of 70 miles an hour. Afterwards, on the same machine, Lieut. Spencer Grey flew to Hendon with a passenger.

On Saturday afternoon Mr. Barnwell was on the the new Vickers biplane, which was flying strongly and steadily in a stiff breeze. This machine was put together at Brooklands in three weeks, and was only out on Tuesday for the first time. Mr. Barnwell also made a good flight on the Vickers monoplane.

On Saturday afternoon both Mr. Merriam and Mr. Raynham made some good flights in a stiff breeze.

On Sunday morning Mr. Vitrey arrived from Hendon on a Breguet biplane, and returned there after a short stay.

Mr. Raynham was first out on Sunday afternoon on the Coventry Ordnance biplane, and made several good flights both alone and with passengers.

Mr. Hamel was next up, and gave one of his unsurpassed demonstration on his Blériot monoplane; rising to a height of well over 6,000 ft. he was lost to sight in the clouds, having to descend owing to the extreme cold. After a brief rest, Mr. Hamel was out again, and amazed the large crowd of spectators with the manner in which he handled his machine.

Whilst Mr. Hamel was giving his demonstration, Mr. Barnwell on the Vickers monoplane made a fine flight to Hendon and back.

Mr. Merriam on the Bristol biplane made a very fine spiral *vol plane* from an altitude of 2,000 ft., and also took up several passengers.



Mr. Barnwell, on the Vickers mono, gliding down into Brooklands Aerodrome after his non-stop flight to Hendon and back on Sunday.

Mr. Bendall was out on another Bristol biplane with some pupils, and Mr. Knight was out testing the new Vickers biplane, on which machine also one or two pupils made flights.

Several more new machines will shortly be ready for testing at Brooklands, at least three of them being monoplanes, which will be piloted by well-known aviators.

**Bristol School.**—On Monday last week, Merriam was out for an early test, then taking Lieut. Picton Warlow, a new pupil, for his first trip of several circuits. Wind was quickly rising. Merriam out for a solo, and found things too bad for pupils.

Wind was too bad all Tuesday morning. Later in the afternoon the weather improved, and Merriam was out for a test, taking Lieut. Robertson Dobie as passenger. Bendall also out for a test on another machine. Merriam was again out with a passenger, and found the conditions much better, afterwards sitting behind Lieut. Robertson Dobie for several straights. Rising wind prevented further work.

On Wednesday, Bendall first up for test, afterwards behind Lieut. Robertson Dobie on straights. Merriam then up with same pupil. He then flew over to Byfleet to wake the other pupils, but rain came on and stopped all flying for a while. After breakfast Merriam up for solo to test conditions, then up behind Lieut. Robertson Dobie for straights and landing practice. This pupil then up alone for the first time flying four good straights with landings. Merriam took up Lieut. Picton Warlow, who had control at intervals. Bendall testing another machine, and then took Lieut. Picton Warlow for tuition. Merriam finished morning's work by taking same pupil up to 1,500 ft. over Byfleet and landed by means of a spiral glide into aerodrome.

Merriam up testing a new engine and then with Lieut. Duncan, a new pupil, for his first trip. Bendall up with same pupil and also with Lieut. Picton Warlow. Lieut. Blatherwick up for a solo, but found it very bumpy. Merriam up for test, and Bendall took Lieut. Picton Warlow for tuition and landing practice. This instructor also up with Lieut. Robertson Dobie and Lieut. Duncan. Merriam up for a solo, after which, darkness prevented further work.

Merriam up for a high flight Thursday, and then up twice with Lieut. Picton Warlow as passenger. Lieut. Robertson Dobie made four good straights and one half circuit in good style. Too windy after breakfast for flying. Wind dropped somewhat at 4 o'clock, and Bendall made a test, but still too bad for pupils.

It was still too bad for flying all through Friday morning. In the afternoon, Merriam made a test, and then up for a high flight with Lieut. Picton Warlow as passenger, teaching pupil right and left hand turns. Bendall tested another machine, and then took Lieut. Duncan for two tuition trips. Merriam up with Lieut. Morgan, another new pupil, for his first trip, reaching 1,000 feet, later took this pupil for another trip, giving him the control at intervals. Bendall up with Lieut. Picton Warlow, instructing pupil in banking. Lieut. Blatherwick made two good solos, and Lieut. Robertson Dobie up for three straights in good style. Merriam and Bendall each a solo back to sheds, after a good afternoon's work.

Merriam first out for solo Saturday, then out behind Lieut. Picton Warlow for straights. Bendall testing another machine, and then up with Lieut. Robertson Dobie, who afterwards made two good circuits. Lieut. Blatherwick followed with a good solo, and descending by means of a spiral *vol plane* with splendid landing. Merriam up behind Lieut. Picton Warlow for straights. Bendall up with Lieuts. Morgan and Duncan for circuits. It was too windy after breakfast for tuition, and pupils were engaged on the machines in the hangars.

**Vickers School.**—Tuesday afternoon last week, Barnwell, testing new school biplane for adjustment, &c.

Major Cameron, on No. 3 mono before breakfast, Wednesday, making a number of excellent flights with good landings. During the forenoon Mr. Lane flew the same machine getting well up, and landing excellently. Meanwhile Barnwell and Knight testing the new biplane. In the afternoon Mr. Lane several further flights on No. 3, Barnwell testing various propellers on No. 5 mono, Knight on biplane.

During Thursday, Barnwell and Knight making final testing flights on new school biplane, the machine proving quite fast, and behaving very well in a 20-mile breeze. Both were out early again Friday on biplane, and later Barnwell took Major Cameron up, there being too much wind for pupils' solo work. In the afternoon, Mr. Lane flying No. 3 mono, and Barnwell testing new propeller on No. 5.

Saturday, Barnwell and Capt. Wood made flights on school biplane early in the morning. Capt. Wood then took Knight as passenger on the same machine, while Barnwell flew No. 5 mono. Later Knight took Major Cameron for several straights on biplane,



and Major Cameron then went by himself or several straights in a bumpy wind, doing very well and showing that he had not forgotten this type of machine. Later on the wind becoming too gusty for pupils' solo work, Barnwell took Major Cameron for several circuits on biplane. The wind having then stopped all biplane work, Barnwell flying on No. 5 mono., testing engine adjustment. In the afternoon Barnwell gave a prospective pupil a joy ride on the school biplane, and later on was flying No. 5 mono. for some time.

Sunday, in the afternoon, Barnwell made a non-stop flight to Hendon and back on No. 5 mono. Later on Capt. Wood flying the biplane, both solo and with passenger.

#### Eastbourne Aerodrome.

ROUGH weather has been rather prevalent during the past fortnight, and outdoor practice in consequence has been somewhat at a standstill. On Thursday and Friday last week the conditions were quite good, and some excellent work was put in. Mr. Morkill, in particular, has improved immensely, and can now handle the Bristol quite well. Mr. Lawrence Fry joined the school on Friday, and is going through a course of instruction on three types of machines, a hydro-biplane, biplane, and monoplane. Work has been commenced on the waterplane sheds, and it is expected they will be completed by the end of the month. Another new shed is also being put up at the flying ground.

#### London Aerodrome, Collindale Avenue, Hendon.

**Grahame-White School.**—W. Birchenough out, Monday, last week, at 8.30, making good straights with Instructor Manton in passenger's seat; later Lieut. Hallows returned to school and received instruction from Instructor Manton. Bayetto doing straights on monoplane, and making good progress.

Strong wind and some rain Tuesday. No school practice.

Wednesday, W. Birchenough out at 12.10 making straight flights with instructor in passenger seat. A. G. Power making straight flights with Instructor Manton, but before lunch, wind began to get up again, although W. Birchenough continued practice until 12.55. Later on, at 3.7, W. Birchenough out again, this time doing straights "solo," and continued until late in the evening, and making excellent progress; A. G. Power also getting practice from 3.35 until late with instructor in passenger's seat, and towards dusk commenced "solo" straights, making good landings.

Foggy early Thursday, but cleared about midday, when wind made school practice impossible until 4.50, when T. H. P. Bayetto went out with a monoplane and continued rolling practice; at 5 o'clock W. Birchenough was out in the school machine No. 7 making good straights with excellent landings, later making quite good turns, and showing very good progress for pupil only joining school in Aero Show week.

Wind too strong Friday morning for practice, but towards evening W. Birchenough continued his good progress of previous day, and T. Bayetto out with monoplane, the only two pupils who had turned up this day.

C. Lan Davis out Saturday, at 9.15, doing straights on monoplane No. 2 with Bayetto on monoplane No. 4 getting in good practice until 9.45, when wind rose and prevented further practice; no biplane pupils turned up until too late.

**Blackburn School.**—On Monday and Tuesday of last week it was too windy for any school work. On Wednesday Mr. Morris was out at 11 a.m., getting in 30 mins. rolling practice. In the afternoon, Mr. Spink flew two circuits. Dr. Christie was out early Thursday morning, practising straight flights for 40 mins.; wind prevented further work. On Friday afternoon, Mr. Spink had 15 mins. practice, flying several circuits and landing well. Mr. Morris also 20 mins. rolling practice.

**Blériot School.**—On Monday, last week, Lieut. Loftus Bryan and M. R. Desoutter were doing good steady straight flights on No. 2 until the wind got up and prevented further work. Mr. A. de Villiers joined the school during the day as a pupil. Tuesday was windy all day, but on Wednesday all pupils put in a good spell of work, M. Gandillon did a nice flight on No. 4 at about 50 ft., and M. Desoutter and Clappen together with Lieut. Loftus Bryan did nice straight flights on Nos. 1 and 2. Mr. Williams was rolling on No. 2 and Mr. de Villiers, who had his first practical lesson, made a very good initial attempt, getting right across the ground and back very straight on No. 2. Thursday was windy, but on Friday there was some calm, during which time Lieut. Loftus Bryan and Mr. Clappen did some nice straight flights on No. 1. Saturday was too windy for school work, but in the afternoon Capt. Cox joined for tuition.

**British Deperdussin School.**—At ten, Wednesday morning, Mr. Spratt a couple of circuits on No. 4 testing. Then Lieut. Horden (first time on this machine) had eight turns at straights, doing excellent work. Mr. Phelps six turns on No. 3. Later, Mr. Whitehouse circuits on No. 4 and Mr. Spratt ditto, followed by Mr. Valazzi and Mr. Whitehouse again. In afternoon Lieut. Horden flew his first circuit on the *brevet* machine and followed it

with some fine figures of eight, with well banked turns. Mr. Valazzi a couple of circuits, also Mr. Whitehouse, and work finished for the day with a couple of circuits by Mr. Spratt. A splendid day's work.

Mr. Spratt up, Thursday, twice for circuits testing wind, but too strong for pupils. He did a fine exhibition flight in the afternoon in a very high wind.

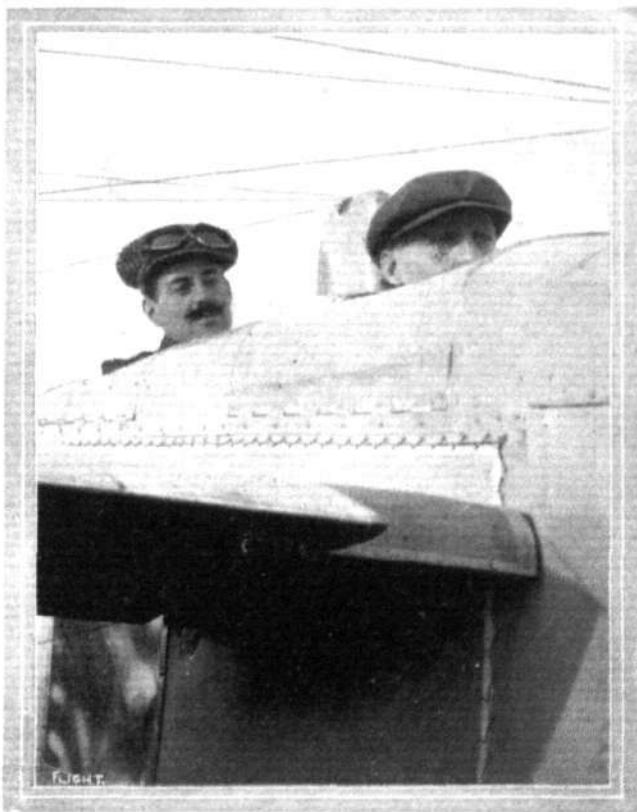
On Friday morning the wind was too strong, but it calmed down towards evening, when Mr. Spratt went up to try it. Handed over to Mr. Whitehouse, who first flew two circuits in aerodrome, then three very wide ones out into the country. Lieut. Horden circuits and figures of eight in good style, while Mr. Hudson (new pupil) was putting in some good work rolling on No. 2 machine. Mr. Whitehouse wound up with a couple of circuits.

At 3.30 p.m. on Saturday, Mr. Gordon Bell took out the new 80-h.p. Dep., the first of several ordered by the Admiralty, for her maiden voyage, which lasted about 20 mins. He attained an altitude of about 500 ft. She is very fast and steady and very clean. The engine being fitted with exhaust pipes, makes her quite silent. The pilot himself being unable to hear it.

**W. H. Ewen School.**—The past week proved more favourable for pupils' flying practice, and every advantage was taken of the fine spells. At 6.50 a.m., on Monday morning, Mr. Lewis W. F. Turner, after a test flight on the 35-h.p. Caudron biplane, handed the machine over to Mr. Lawford, who flew several circuits, finishing on each occasion with a nicely judged landing.

M. Baumann was also getting good results from pupils on the 28-h.p. Caudron biplane, Lieut. Osborne making good progress in straights, while Messrs. Stewart, Prosser and Torr were making excellent progress on the same machine. After lunch, all the above pupils were again out, getting in some good practice, and greatly adding to their experience.

Tuesday was too windy for school work, Mr. Turner, however, put up a good exhibition on the 60 two-seater Caudron biplane. Wednesday, pupils were out at 7 a.m. under the instruction of Mr. Turner and E. Baumann. M. Baumann, after testing the 28-h.p. Caudron, handed the machine over to Lieut. Osborne and Mr. Torr who put in some good practice in straight flights. Mr. L. W. F. Turner was also getting good results from pupils on the 35-h.p. Caudron, Mr. Lawford flying circuits well. After lunch, Messrs. Torr, Stewart, and Prosser were all making good progress on the 28 Caudron, while Mr. Lawford was again flying well on the 35. The event of the day, however, was Lieut. McMullan successfully passing the R.Ae.C. *brevet* tests on the 35 Caudron *brevet* biplane,



Mr. Henry M. Jullerot, the Manager and Chief Pilot of the Bristol School at Salisbury Plain, on one of the 80-h.p. school monoplanes, with Capt. Landon, a very promising pupil, as passenger.

flying confidently at an altitude of 300 ft. he described the figures in a masterly manner, on each occasion landing close on the mark. Mr. L. Turner also made several good flights on the 60-h.p. Caudron.

The wind was too strong Thursday for school work. Mr. Turner, however, put up a splendid exhibition on the 60-h.p. Caudron. Next day, during the morning, the wind was much too strong for school work; Commander Schwann, however, took up the 35-h.p. Caudron biplane for a splendid exhibition flight lasting 25 mins. In spite of the 30-35 m.p.h. wind, the little biplane was flown in a wonderfully steady manner. During the afternoon all the pupils were out. Mr. L. W. F. Turner, after a test flight on the 35-h.p. Caudron, handed the machine over to Lieut. Bayly, who made several good straight flights and half circuits. Messrs. McGregor and Zubiaga also making good progress on the same machine. M. Baumann was also getting good results from pupils on the 28 Caudron. Messrs. Torr, Prosser, and Stewart all getting in useful practice in straights. M. Baumann put up an excellent flight on the 35 Caudron, while Mr. Turner was doing some good solo flying and passenger-carrying on the 60-h.p. Caudron. During the afternoon, Mr. Gordon Bell arrived on the 70-h.p. Gnome two-seater Caudron from Brooklands, doing the trip in 20 mins., finishing with a corkscrew.

Saturday, pupils were out at 7 a.m., when M. Baumann, after testing the 28-h.p. Caudron, handed the machine over to Messrs. Torr and Gist, who made several good straight flights. Mr. Turner was also busy with pupils on the 35 biplane. After a test flight he handed the machine over to Lieut. Bayly and Messrs. Lawford and Zubiaga, who were all flying well. Sunday, too windy for school work, Mr. Turner, however, was out flying well on the 60-h.p. Caudron.

**Temple School.**—Mr. George L. Temple made two circuits on Monday last week on the 35-h.p. Caudron, and on Wednesday was flying at intervals throughout the day, making some good *vol planés*, and later taking Mr. Morris for a passenger flight on the Caudron. Thursday afternoon he made a short flight on the Caudron, finding the wind too strong to continue, following up on Friday morning with an excellent flight in a bad wind, having great difficulties in keeping near the aerodrome, and finishing with a fine *vol plané*, landing head to wind with engine right off. On Saturday he made a short exhibition flight.

## Salisbury Plain.

**Bristol School.**—High winds all day Monday, last week. England made a trial during a lull in the afternoon, but found weather exceedingly bad, and quite impossible for school work.

On Tuesday, the wind was still very bad, right up to the latter part of the afternoon, when it dropped considerably. England went



Lt. N. W. Noel, who, on February 8th, during the exhibition flying at Hendon, successfully passed his *brevet* tests on the 35-h.p. Caudron biplane.

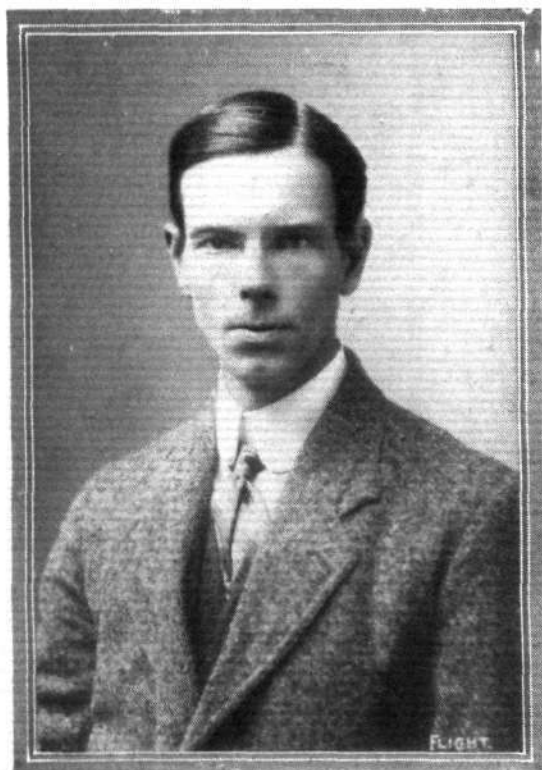
for a trial, and then took Lieut. Read and Mr. Tower for tuition. Jullerot made a couple of solos on a 50-h.p. monoplane, darkness preventing further work.

Jullerot was out for a test, Wednesday, in a 50-h.p. tandem monoplane, then taking Capt. Landon for tuition on biplane. England also gave this latter pupil two trips, and one to Lieut. Read, Pixton taking this latter pupil for tuition. Jullerot made half an hour's flight altogether in a 50-h.p. tandem. Jullerot first up in the afternoon making a solo, and then taking Mr. Tod in side-by-side monoplane, and afterwards Lieut. Read, this latter pupil being taken out in a biplane. Jullerot was out for a 20 mins. test of an 80-h.p. Bristol monoplane, having Mr. Tower as passenger. Capt. Landon and Lieut. Read were both given tuition by England, who later took Mr. Tower for a flight in a 80-h.p. Bristol monoplane. Mr. Tod was out for half an hour's good taxi-ing in a single-seater monoplane. Mr. Tower made a good solo on a biplane with excellent landing, whilst Jullerot took Lieut. Read in an 80-h.p., and Capt. Landon in a biplane.

England was out on a biplane with Mr. Tower, and then three times with Capt. Landon. Jullerot took Mr. Tod for a long trip in an 80-h.p. monoplane. England testing the engine of one of the biplanes up to 1,000 ft., landing with a splendid spiral, engine cut off. Mr. Tod made his first straight solo on a single-seater monoplane, flying at quite 30 ft.

On Thursday the weather was still fairly favourable and England was out early in an 80-h.p. monoplane with Mr. Tod as passenger, attaining a height of 4,400 ft. Later, England out again, this time on a biplane to test conditions for pupils, but the weather was found to be much too bumpy for any tuition work. Jullerot also out for a solo on an 80-h.p. monoplane, but wind and rain stopped further work.

England first out with Mr. Tod as passenger, Friday, on the 80-h.p. monoplane. Capt. Landon and Mr. Tod each had a flight in the same machine, rising each time to 2,000 ft., and landing with a very good *vol plané*. Capt. Landon then out for a trip in a biplane with England in the pilot's seat, and then this pupil went for his first solo, which he accomplished in good style. Mr. Tower then went out for a solo on a biplane, making a good flight with landing. Meanwhile Jullerot out on the 50-h.p. tandem monoplane for a short flight, testing engine. Mr. Tod out for several straights on the 80-h.p. monoplane. Pixton out also on the 80-h.p. with Fellows as passenger. After lunch England tested on a biplane, and then Jullerot out with Capt. Landon on an 80-h.p. monoplane, doing very neat banked turns. In the meantime Pixton out on another 80-h.p. monoplane, and then with Lieut. Chiscaneanu to 1,400 ft., and returning with a splendid spiral. England next out with Mr. Tower to 2,000 ft., afterwards with Lieut. Parvescu, descending with a splendid spiral. Jullerot then out with Lieut. Negrescu, on an 80-h.p. monoplane, going round Roolstone and Shrewton. Afterwards Mr. Tod on same machine for several circuits, then out again with England, and then with Jullerot on the side-by-side monoplane. Mr. Tod



Mr. Percy M. Muller, who has taken his *brevet* at the Ducrocq School at Brooklands.



afterwards going for a good solo and then for another solo on the side-by-side, and put up a splendid show, flying at an average of 100 ft., and making a good landing. Lieuts. Negrescu, Parvelescu, and Chiscaneanu each out for a good solo on a biplane, and later Mr. Tower out for two solos with good landing.

Tuition impossible all day Saturday, owing to the wind, and pupils busily engaged in the hangars.

**Royal Flying Corps.**—Tuesday of last week saw little flying, the only one out being Major Higgins, D.S.O., who did some scouting work on biplane 203. When about 4 miles from the sheds an inlet-valve broke, but, although a quick landing had to be effected, no damage was done. There was no flying on Wednesday, and although Thursday was a fine morning, there was a stiff wind blowing. Pilot Strugnell was out testing engine of M. Farman 216, and afterwards Lieut. Carmichael made one flight of 20 mins., and another of 25 mins., at a height of 1,000 ft. Lieut. Cholmondeley then took off in an M. Farman 214 to a good height, and flew around the Plain for 15 mins. An airship was sighted in the distance, and proved to be the Naval airship from Farnborough. Lieut. Cholmondeley, and Lieut. Anderson as passenger, set off in M. Farman 214, and, rising quickly to a height of 2,000 ft., passed over the "Beta" during a 30 mins. flight.

On Friday, Lieut. Cholmondeley was out on M. Farman 214 and went over to the Central Flying School at Upavon. On returning, he went up again with Air Mechanic Smith, getting to a height of 2,000 ft. Lieut. Anderson then took charge of the biplane, and after a solo trip, was up with Air Mechanic Chandler as passenger for a 10 mins. flight. Lieut. Carmichael on M. Farman 216 made a good flight of an hour's duration.

In the afternoon the weather was ideal for out-door work, and Major Higgins, D.S.O., Lieuts. Cholmondeley, Anderson, and Carmichael made several flights at good heights. Several machines passed over the aerodrome from the Central Flying School, Upavon, one, BE 417. On Saturday, no out-door work was done, owing to the R.F.C. changing over from Netheravon Cavalry School to Bulford Barracks. Monday, no out-door work, owing to the usual March winds.

**Upavon (Central Flying School).**

**Royal Flying Corps.**—On Tuesday of last week a strong wind was blowing from the south-east up till about four o'clock when it dropped to almost a dead calm. On Avro 404, Lieut. Warter made two circuits of 10 mins. each. Lieuts. Small and Holt, one circuit each. On Avro 406, Lieut. Marks made an excellent flight of a quarter of an hour. On BE 416, Lieuts. Allen and Burroughs made one circuit each of 10 mins. Lieuts. Soames and Arthur each an excellent flight of 20 mins. on BE 417. Capt. Salmond and Lieut. Bigsworth one circuit each on same machine. On Maurice Farman 411, Lieut. Longmore, R.N., flew one circuit with Capt. Vivian, R.N., as passenger. Sergt. Street was receiving instruction from Lieut. Longmore for half an hour on the same machine. On M. Farman 403, Air Mechanic Collis and Master Mechanic O'Connor each made one circuit. Lieuts.

Ross and Kennedy each flew a circuit on same machine. Lieuts. Boyle, Marix, Conran, and Hartrey all doing circuits in good style on M. Farman 425. Assistant-Paymaster Lidderdale made good flight of 20 mins. on the M. Farman 428. On M. Farman 418, Capt. Tucker was in the air for 15 mins., Lieut. Bowhill for one circuit, and Lieut. Glanville for two circuits. On Short biplane 401, Lieuts. Oliver and Roupell each made one circuit. On Short tractor biplane 423, Major Gerrard took Lieut. Oliver and Sergt. Vagg as passengers for 10 mins. each.

On Wednesday a slight south-east wind was blowing. On Avro 404, Lieut. Warter made two flights of 15 mins. each and one of 10 mins. Lieuts. Littleton, Small, Holt, and Marks all doing circuits in good style, each being in the air for 35 mins. On Avro 406, Major Fulton, R.F.A., giving instruction to Lieut. Rathbone for 10 mins., and to Lieut. Read for a quarter of an hour. Lieut. Marks made a good flight of 20 mins., and Lieut. Rathbone one circuit of 10 mins. on same machine. Air Mechanic Higginbottom giving instruction to Leading Seaman Marchant for half an hour. On BE 416, Capt. Salmond made a short flight of 5 mins. Lieuts. Soames, Burroughs, and Arthur were all in the air for a quarter of an hour on the same machine. Capt. Salmond giving instruction to Lieut. Dawes for 20 mins. On BE 417, Lieut.-Col. Cook made good flight of 10 mins. Lieuts. Bigsworth and McDonnell each flew two circuits. On the same machine, Lieuts. Soames and Burroughs were each in the air for 15 mins. On M. Farman 411, Lieut. Longmore giving instruction to Capt. Vivian for 20 and 25 mins. respectively. Leading Seaman Bateman also receiving instruction for 21 mins. On M. Farman 403, Sergt. Stafford flying for 42 mins., during which time he made five landings, getting off again without leaving the machine. Lieut. Kennedy made two excellent flights of 20 and 22 mins. each. Capt. Lithgow, Lieut. Ross, Assistant Paymaster Lidderdale, and Air Mechanic Collis were all in the air for 16 mins. each. On M. Farman 11, Major Gerrard made one circuit with

Lieut. Roupell as passenger. Lieuts. Roupell and Bowhill each flew two circuits on same machine. Lieut. Unwin flew two solos, and Lieut. Glanville one solo. Capt. Tucker was in the air for 15 mins. on same machine. Capt. Salmond giving instruction to Lieuts. Vernon and Soames on M. Farman 428. Lieut. Smith-Barry made an excellent flight of 15 mins., doing good banked turns. Lieut. Burroughs made a flight of 11 mins., and Capt. Salmond, with Lieut. Arthur as passenger, for 10 mins. on same machine. On Short biplane 401, Major Gerrard made a short flight with Capt. McDonnell as passenger. Lieut. Oliver flying for 15 mins. on the same machine.

On Thursday the weather was ideal, and all machines were out. On BE 416, Capt. Salmond made two short flights of 5 mins. each. On BE 417, Lieut. Soames, an excellent flight of 32 mins., and later a circuit of 11 mins. Lieuts. Arthur and Burroughs each made a circuit on the same machine. Capt. Salmond was on the practice ground, with Sergt. Rigby under instruction for half an hour. On M. Farman



Arrival, during the Model Flying Competition at Hendon, of Lieut. Spencer Grey on the Sopwith biplane.

411, Lieut. Longmore was giving instruction to Sergt. Street for 13 mins., Leading Seaman Bateman for 12 and 19 mins., and to Capt. Vivian, R.N., for 18 mins. On M. Farman 425, Lieut. Boyle made a good cross-country flight of 1 hr. 20 mins. On M. Farman 403, Air Mechanic Collis made one circuit. Sergt. Street doing circuits for 20 mins. and later 25 mins. on same machine. Lieut. Kennedy made two circuits, and Capt. Salmond one circuit on M. Farman 429, also one flight of half an hour with Lieut. Fitzroy as passenger. Lieut. Conran made two flights with P.O. Hooper as passenger, and two flights with Lieut. Fitzroy as passenger. Lieuts. Glanville, Unwin, and Roupell all doing circuits in good style on M. Farman 418. Capt. Salmond giving instruction to Sergt. Mead for 26 mins. on M. Farman 428. On Short biplane 401, Lieut. Bowhill made an excellent flight of 50 mins.

On Friday, a good day's work was done. On Avro 406, Major Fulton made one circuit, and Air Mechanic Higginbottom one circuit. Lieut. Rathbone one circuit of 10 mins., and then went for his certificate, which he took in excellent style. In making his two landings, one was right on the mark, and the other was only two yards off. Capt. MacDonnell, on BE 416, 5 mins., and later three circuits of aerodrome. Lieut. Burroughs for 15 mins. on same machine. Capt. Salmond giving instruction to Lieut. Dawes for 25 mins., and to Lieut. Thompson for 30 mins. On BE 417 Capt. Salmond giving instruction to Sergt. Rigby for 40 mins. Lieuts. Soames, Arthur and Bigsworth all made two flights each of 20 mins. Capt. Salmond made a flight of 46 mins. with Major Trenchard as passenger. He then gave instruction to Lieut. Vernon for 20 mins. and Sergt. Rigby for 10 mins. On M. Farman 403, Sergts. Street and Stafford each made a 15 mins. flight. Leading Seaman Bateman doing circuits for 20 mins. on the same machine. On M. Farman 425 Master-Mechanic O'Connor was flying for 52 mins. and Lieut. Harvey for 56 mins. Lieuts. Ross and Kennedy doing

circuits for 20 mins. each. Capt. Salmond circuits for an hour on same machine. On M. Farman 411, Lieut. Longmore giving instruction to Capt. Vivian for 40, 34, 38 and 40 mins. respectively, to Air Mechanic McNamara for 15 and 20 mins., and to Leading Seaman Bateman for 20 mins.

Capt. Salmond, with Capt. Paine, M.V.O., R.N., as passenger for half an hour. On M. Farman 427, Lieut. Marix made a flight of 23 mins.; Capt. Tucker three flights of 16, 10 and 20 mins. on M. Farman 418. On same machine, Lieut. Bowhill four flights of 26, 15, 20 and 25 mins.; and Lieut. Unwin two flights of 10 and 15 mins.; Lieut. Roupell made one flight of a quarter of an hour. On M. Farman 428, Capt. Salmond one flight of 12 mins., and Lieut. Burroughs two flights of 8 mins. each. On Short biplane 401, Lieut. Oliver three flights of 10, 18 and 15 mins., and Capt. Tucker one of 10 mins. On Short biplane 402, Lieuts. Roupell, Oliver, Glanville and Unwin all doing circuits in good style. Major Gerrard flew a BE 408, with a 140-h.p. Gnome, from Farnborough, on Friday evening, doing the journey of about 47 miles in 29 mins.

Saturday, Major Gerrard had the 40-h.p. BE out again, and made a flight of 20 mins. with Lieut. Oliver and Sergt. Vagg as passengers. On BE 417, Capt. Salmond made one flight of 6 mins. and one of 7 mins. with Sergt. Rigby as passenger. On M. Farman 411, Lieut. Longmore giving instruction to Sergt. Kemper, and to Air Mechanic McNamara for 19 mins. each. Capt. Tucker made an excellent flight of 50 mins. on M. Farman 418. On Short biplane Major Gerrard giving instruction to Sergt. Vagg for 10 mins. Sergt. Vagg then made two good flights of 15 mins. each. On Short biplane 402, Lieuts. Oliver and Roupell each made a flight of 12 mins. each.

Monday was altogether too rough for flying, a strong wind blowing from the S.W. all day.

## BRITISH NOTES OF THE WEEK.

### First Official R.Ae.C. Trial.

THE first certificate to be issued by the Royal Aero Club in respect of the official trial of an aeroplane appears in full on p. 283. It refers to the tests which were made on Salisbury Plain on December 16th and 17th, with the Dunne biplane, fitted with a 50-60-h.p. Green engine. It will be seen that the trials again afforded testimony to the stability of the Dunne machine in any sort of weather.

### The Mortimer Singer Prize.

FROM the rules of the competition for this prize, which are now published, it can be seen that the competitors will be required to make five out and home flights from a point on land to a point five miles out at sea. The machine must alight at each point, and the maximum time allowed is five hours. A passenger must be carried, and a minimum altitude of 750 ft. maintained, while on one occasion the machine must rise to 1,500 ft. The full rules of the contest, which will be open from May 1st to October 31st, will be found on p. 282.

### Another British Prize.

MR. M. MAIR ROLPH gave a little dinner party at Hatchett's Restaurant, on Monday last, and announced his intention of giving a cup and cash prize for competition amongst British aviators. The little party included Col. Cody, Messrs. McClean, Hamel, Sopwith, Cary Lockyer, and Harold E. Perrin.

### A Benevolent Fund.

FROM the official notices of the Royal Aero Club, it will be seen that the question of instituting a benevolent fund for aviators has been under consideration. A sub-committee has been appointed to go further into the matter.

### The Aeroplanes of To-morrow.

TAKING part in the discussion on Major Sykes' paper on Military Aviation, before the Aeronautical Society last week, Mr. Mervyn O'Gorman, superintendent of the Royal Aircraft Factory, said he thought that two years would see Major Sykes' dream realised. Machines should then be obtainable which could transport a dozen men, guns and ammunition.

### Admiral Fremantle on Aircraft.

RESPONDING to the toast of "The Imperial Forces" at the dinner given by the Worshipful Company of Gold and Silver Wyre Drawers to the Lord Mayor and Sheriffs of London, on the 27th ult., Admiral Sir E. Fremantle, referring to the subject of aircraft, said we did not pay sufficient attention to what was going on abroad. Whether we were strong enough or not in Dreadnoughts, this question of aircraft was of vital importance. Ships would be little protection if foreign aircraft could drop bombs over London without us being able to meet them with a similar force.

### Col. Cody's New Works.

FOR the building of biplanes and man-lifting kites we learn that Col. Cody is putting up a dozen sheds and workshops, &c., on Laffan's Plain, between Aldershot and Fleet. Facilities will, of course, be available for the instruction of officers who wish to qualify for service with the Royal Flying Corps.

### Testing the Navy's New Blériot.

WITH Mr. Gustav Hamel as pilot, the trials of the 80-h.p. Gnome-Blériot two-seater monoplane, bought by the Admiralty at the Olympia Show, were successfully carried out under the supervision of Commander C. R. Samson, R.N., at Eastchurch, on the 26th ult. For just over an hour the machine was flown at an altitude varying between 3,000 and 6,000 ft., the first 3,000 ft. being reached in less than half the time stipulated by the Admiralty.

### Flying at Easter at Brooklands.

IN connection with the car race-meeting at Brooklands on Easter Monday, there will be, as usual, a flying event. So far, the details have not been settled, but there will be a first prize of fifty guineas, or a cup, presented by the British Petroleum Co., Ltd., a second prize of £25, and a third prize of £10.

### Aeroplanes from English Counties.

A SCHEME has been placed before the Government by Capt. Walter Faber, M.P., for the provision of aeroplanes for Government use by the English counties, and Capt. Faber has backed up his scheme by offering to provide and equip an aeroplane to be called Hampshire. In a letter to Capt. Faber, the Prime Minister has stated that the whole question of aerial defence is receiving the most careful consideration.

### Pilot Wanted for a Cottage Hospital Fête.

THE organisers of a cottage hospital fête in Yorkshire have written to us to know whether we can find among our readers a first-class pilot who will be willing to give a demonstration for a moderate fee, the object of the fête being, of course, for a charitable purpose. If anyone is interested to assist in this matter we shall be pleased to place them privately in communication with those concerned.

### Bargains for Aviators.

WE have received from Messrs. Charles Lane and Co., Ltd., of 311, Euston Road, N.W., a list setting forth a number of bargains which they are now offering. This includes complete monoplanes and engines, as well as complete sets of parts enabling anyone to build up a machine for themselves. Of propellers, of which the firm make a speciality, there are a number of different types to be had, from as low as £5 10s. each. There is also a large assortment of sundries, such as wire, eyebolts, radiators, tanks, &c., all at reduced prices.



# FOREIGN AVIATION NEWS.

## More Passenger Records.

ON February 27th, Frantz, the well-known pilot of Savary biplanes, at the Chartres aerodrome, beat the height record for pilot and six passengers. In a quarter of an hour the machine rose to 620 metres, thus beating Faller's German record of 300 metres. The weight lifted was 465 kilograms. Afterwards two other passengers were taken on board, and a further short flight made.

A further record was made by Frantz, on Saturday, when he was flying with eight passengers, the weight being 601 kilograms, at a height between 60 and 80 metres, during 11 mins 28½ secs. The machine was fitted with a 110-h.p. Salmson (Canton-Unne) motor driving a Chauvière propeller.

## The Ae.C.F. Criterium.

THE Aero Club of France will again offer a prize of 10,000 francs, to be known as the Criterium d'Aviation, and it will probably be awarded on similar lines to last year for a non-stop flight over a closed circuit on an aerodrome. There may, however, be several modifications in the regulations.

## Another Military Competition in France.

THE French military authorities are now busy with the details of the trials of French-built aeroplanes, which it is proposed to hold at the end of the year.

## Fast Flying on Clement-Bayard.

ON Tuesday, Guillaux flew from Savigny to Issy, a distance of about 200 kiloms. under the hour, his speed working out to 190 k.p.h. (119 miles an hour). He made the trip to Savigny on the 28th ult., in order to be present at the opening of some new aeroplane sheds.

## Paris to Bordeaux.

ON his military Farman, Lieut. Delvert left Issy on Saturday last, with the object of flying to Bordeaux, which he accomplished after a very trying battle with the weather, landing at Grapillet Camp, near Bordeaux, at 5 p.m. He had to land several times on the way.

## Corbett Wilson at Biarritz.

AMONG the arrivals at Biarritz on Monday was Mr. Corbett Wilson, who flew over from Pau on his 50-h.p. Gnome-Blériot in an hour. On the 25th, Mr. Wilson flew from Pau to Lourdes and back, and on the following day he made an excursion to Oloron.

## Fast Flying on a Breguet.

STARTING from Velizy at 11 a.m. on the 26th ult., Fugairon arrived at Rouen in an hour, his speed working out to something about 145 k.p.h. He was flying a Breguet biplane with an 80-h.p. Salmson (Canton-Unne) motor.

## A Coastwise Trip.

LAST Monday, Fugairon made the first stage of a trip from Paris to Cap de la Hague, by flying from Paris to Rouen on his Breguet machine. The other stopping places on his route are Dieppe, Havre, Cherbourg, and at each he will give a lecture on aviation.

## Across Country with Two Passengers.

ON a three-seater Deperdussin monoplane, with 100-h.p.

Gnome motor, Lieut. Dietrich, with Sergt. Constantin and a sapper flew from Rheims to Nancy on Monday, the trip taking an hour and a half. The monoplane had to fight its way against a strong wind all the way.

## New Deperdussin Superior Pilots.

OVER a course from Betheny to Mailly Camp, Capt. Fabre completed the tests for his military *brevet* on Monday, using a Deperdussin machine. Capt. Delagarde completed similar tests on the 25th ult., but over the Rheims-Amiens course. Another fine voyage on that day was made from Betheny to Verdun and back by Martineux.

## Good Work on Clement-Bayards.

WITH Grandseigne as passenger, Guillaux was flying for over three hours on his Clement-Bayard monoplane at Issy on the 25th ult. He afterwards made a flight of an hour, while after dark he made a trip round the environs of Issy, greatly to the mystification of the inhabitants, who could hear the familiar sounds of the motor but could not see the machine.

## A Big Delivery of Blériots.

AN interesting incident was witnessed at Levallois on the 25th ult., when a train of 10 motor lorries, each bearing a Blériot monoplane, started off from the Blériot works for the Avor camp, where the machines will be handed over to the French Army.

## Another Borel Superior Pilot.

AT Buc on the 26th ult., Sergeant Clamadieu made a test flight of an hour and a half for a military *brevet* and Lieut. Quillien was up for an hour, both pilots using Borel monoplanes.

## High Speed on Blériot monoplane.

THE Blériot monoplane with a 40-h.p. 6-cylinder Anzani monoplane is a very speedy combination, and over a circular course at the Blériot ground at Buc on the 28th ult., with Perreyon at the wheel, one of them was timed to attain a speed of 108 k.p.h.

## A Caudron Superior Pilot.

ON Saturday, Sapper Fougere, on a Caudron biplane, made the triangular test for a military *brevet*, flying over a course from Le Crotoy to Calais, then to Le Treport and back to Crotoy.

## A Fatality in France.

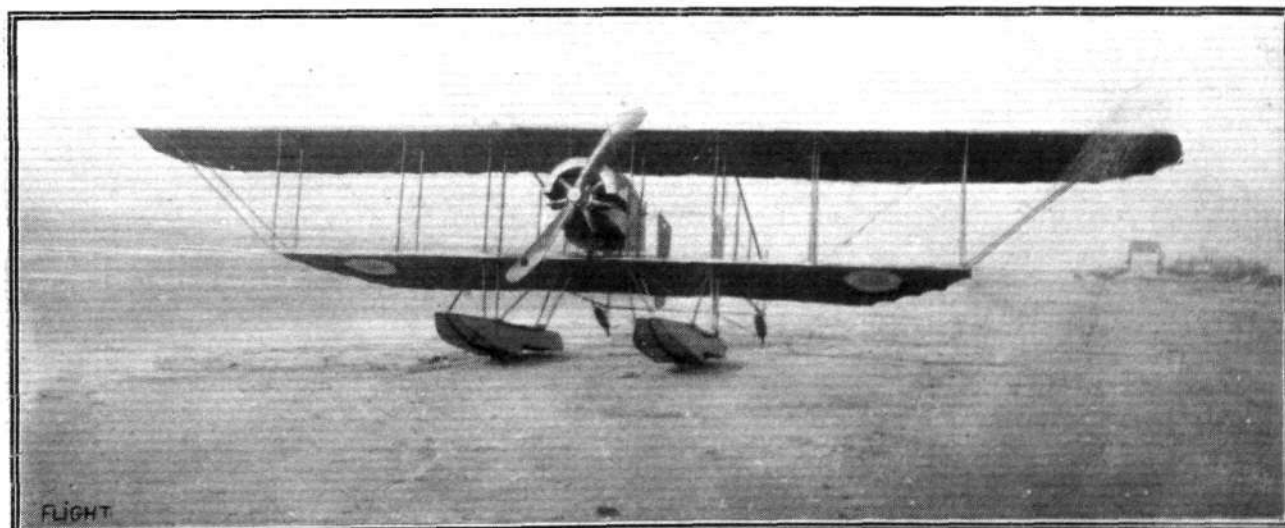
WHILE making an exhibition flight, on Saturday, before the French Parliamentary Commission visiting Vierzon, Lieut. Porteau had a fall which resulted in fatal injuries.

## Long Flight on a M. Farman.

LIEUT. MAUGER DEVARENNE, on his M. Farman with a passenger, flew from Verdun to Buc on March 2nd, a distance of 260 kiloms. in 2 hrs. 20 mins. On the previous day he arrived at Verdun, and flew back to Verdun on Monday, so covering 780 kiloms. in three days.

## A Frenchman in Germany.

WHILE attempting to fly from Mourmelon to Switzerland on Sunday, the Hanriot pilot Favre had to land for petrol, near Metz. He was promptly questioned by the German police, but after enquiries was allowed to pack up his machine and return to France by train.



One of the new 80-h.p Gnome-Caudron hydro-biplanes supplied to the French Navy. The target-like devices painted below the lower plane are distinctive of machines belonging to the French maritime service.

## Entries for Monaco.

THE entry list for the hydro-aeroplane competitions at Monaco closed with a total of 26, including five Deperdussins, three Breguets, three Borels, two Henry Farmans, two Maurice Farmans, two Nieuports, two D'Artois, two Astras, and one each Blériot, Morane-Saulnier, Bossi, de Marçay, and Fokker.

## The Wright Patents.

IT is announced from Berlin that another decision against the Wright German Patent, so far as it concerns the system of warping, was given in the Supreme Court of Leipzig on the 26th ult., but, by way of compensation, a report from New York states that the Supreme Court has given a decision in favour of the Wright Patent, and that the Company will now proceed against other American manufacturers for infringement.

## Fatalities in Germany.

WHILE testing, on the 26th ult., a machine built by himself at Cologne, Werntgen fell from a height of 60 metres and received fatal injuries.

On the same day at Mulhausen, a military biplane fell from a height of 60 metres. The pilot, Lieut. Linke, was slightly injured, but the passenger, a non-commissioned officer, died from his injuries.

## Kaiser Inspects Waterplanes.

AFTER the launch of the latest "Dreadnought" at Wilhelms-haven on Saturday last, the Kaiser witnessed a couple of hydro-aeroplanes, belonging to the German Navy, manoeuvring over and on the water for about half an hour.

## Flying from Paris to Milan.

WITH the object of flying to Milan in two stages, Gilbert on his Rhone-engined Morane, and Letort on a Sommer left Issy on Monday morning for Lyon, which was to be the stopping place for the day. The weather was, however, against the aviators, and Gilbert who was accompanied by a passenger, decided to land at Melan but Letort went on for some distance further.

## A Milan to Rome Trip.

THE Russian aviator, Slavorosoff, arrived at Rome on his monoplane on the 3rd ult., having made the trip from Milan in three stages. He started from Milan on February 26th, and after flying for two hours and fifty minutes arrived at San Rossore, by Pisa. His next stage was to Civita-Vecchia, about 100 kiloms. from Rome. Throughout the trip the pilot was greatly hampered by the bad weather.

## Farmans in Sahara Desert.

ON the last days of February an escadrille of Farman biplanes succeeded in flying in company a greater part of the way from

Biskra to Tunis. Biskra was left on the morning of the 26th ult., and the first stage of 260 kiloms. to Tozeur was made in good time. On the following morning they completed the next stage of 180 kiloms to Gabes, and a similar distance flown in the afternoon took the pilots, who were each accompanied by a passenger, to Sfax. On the 28th the journey was resumed, but some of the flyers began to experience trouble. Lieut. Jolain had to land at Kairouan, while Lieut. Chentin, Reimbert and Sergeant Hurard stopped at Sousse, which is about 860 kiloms. from Biskra. On Saturday they restarted for Tunis, and were joined on the way by Lieut. Jolain, but the wind was very troublesome. Lieut. Reimbert had to stop at Grombalia, about 30 kiloms. short of Tunis. Lieut. Jolain was brought down at Bonficha and Sergeant Hurard at Enfidaville.



## AIRSHIP NEWS.

### A Mishap to British Airship.

ON Thursday of last week, an experimental airship, made up of the spare envelope of the Beta and the car of the Willows Naval Airship, set out from Farnborough and cruised to Salisbury Plain. On the return journey engine trouble was experienced, and in trying to effect a landing near Ash, the dirigible carried away some telegraph wire. Eventually the envelope was deflated, packed up on a motor lorry and returned to the R.A.F.

### The New Dirigibles for France.

IT is stated that of the seven dirigibles which have been ordered by the French Government, two will be built by the Clement firm, two by the Astra Company, two by the Zodiac works and the other by the Army Factory at Chalais Meudon. They will each be of 20,000 cubic metres capacity, have a speed of 75 k.p.h. and be capable of rising more than 2,000 metres.

### New German Air Stations.

DURING the discussion in the Reichstag on the Navy Estimates on Saturday, the German Naval Minister, Admiral von Tirpitz, stated that negotiations were in progress regarding the establishment of air stations at Wismar and Rostock. He also said that both aeroplanes and airships were receiving the closest attention of the Naval authorities.

### A Mishap with Naval Zeppelin.

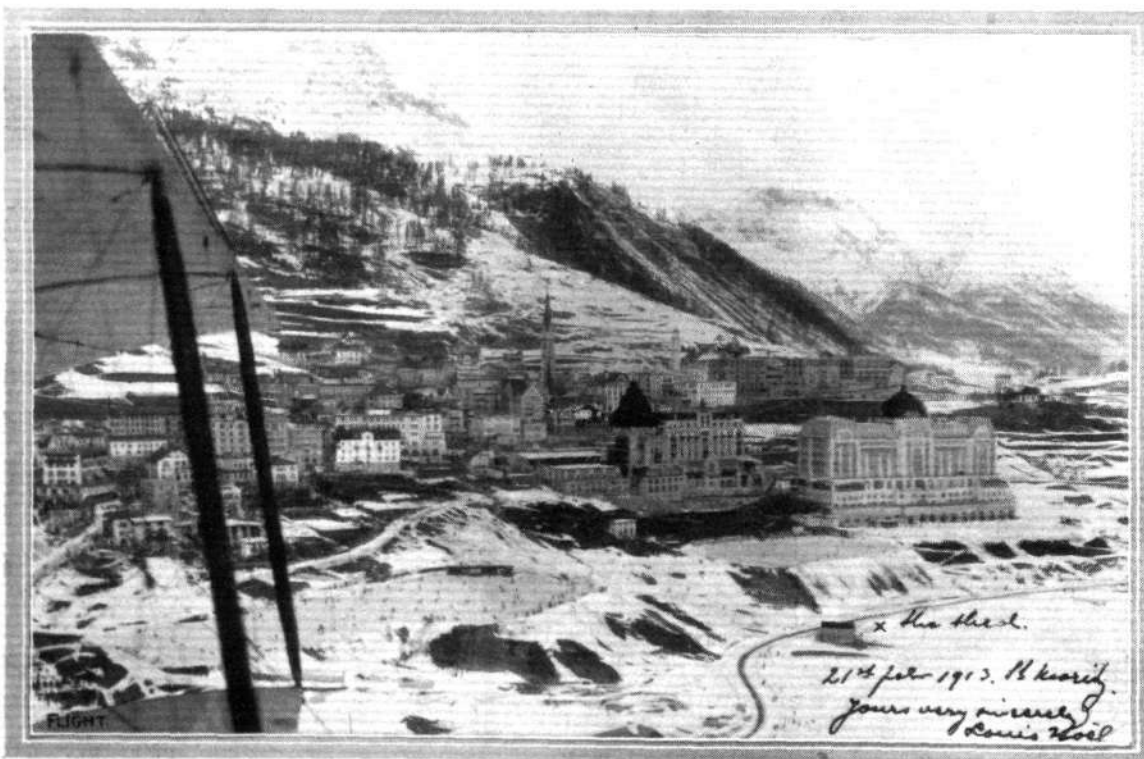
WHILE the Naval Zeppelin was being put into her shed at Johannisthal on the 26th ult. one of the four-bladed propellers was smashed against the shed.

### The Hansa Over Royal Visitors.

WHEN the Danish King and Queen arrived in Berlin on the 24th they had an aerial escort. With eighteen passengers on board, the Hansa left Potsdam at half-past two, and half an hour later was floating over the Lehrte station. The airship flying the Danish flag kept in front of the procession as far as the Castle and coming back met the procession again and kept pace with it to the Brandenburg Gate. She was safely housed at 5.30 p.m.

### A Parseval for Russia.

THE last day of February witnessed the first trials at Bitterfeld of a new Parseval airship ordered by Russia. She is 80 metres long, has a cubic capacity of 10,000 cubic metres, and is fitted with two 180-h.p. motors. Two similar airships are being built for Italy, while the one for Great Britain is nearly complete.



A postcard received from Mr. Louis Noel from St. Moritz, where Mr. Noel has, since January 28th, been making many flights over the lake. For weeks the weather was very bad, and sometimes he had many difficulties with the dreadfully strong, icy gales. Otherwise, Mr. Noel says, the flying there is lovely. Our photograph was secured on February 21st. Note the hangar down below.



# STABILITY DEVICES.

By MERVYN O'GORMAN.

(Continued from page 265.)

48. **Dulier's Advancing Wings as Maintainers of Horizontality.**—Col. Dulier desires by the process of advancing the wing of his "Aerocar," when steering combined with warping the tail, to secure that it shall maintain perfect horizontality on the turn, both as regards the lateral and longitudinal axis.

His scheme is based on the behaviour of some birds, amongst them certain pigeons. Such a bird's method, he says, for turning sharply to the left, is, contrary to the views of aeroplanists, to advance or extend the left wing, thus bringing its centre of pressure forward of the main weight, then both wings are raised, the inner or left wing's trailing edge being progressively warped, beginning at the extreme tip which is thus the fulcrum or pivot of the turn.

These first movements tend to put the bird *cabré*, and a correcting movement is therefore made with the right side of the tail which is accordingly advanced or extended and also warped for lift.

49. The device which he offers as an improvement on present means is given in Fig. 13 without clear explanation of its utilisation.

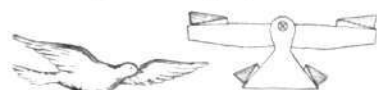


Fig. 13.—Col. Dulier's advancing wing device for turning horizontally.

It is fortunate that inventors have the divine afflatus which enables them to persevere in their apparently unpromising ideas, otherwise we should certainly not be flying as we are to-day. If Col. Dulier's bird observations are correct, however, they have this of interest, that just as little birds paddle hard and then proceed like a projectile with closed wings abandoning all support from the air for a spell, so certain other birds, on turning, say, to the left, abandon most of the support the air would give and use their wings and tail to produce a large fin effect, mostly top fin.

50. The left wing makes a large top fin forward and a front rudder (Fig. 1B), the right wing a large top fin central, thus taking the side air pressure, while the tail is used to compensate for the disturbance of general attitude and becomes the rear fin by the act of being warped.

51. Col. Dulier says that in spite of all these movements the bird is banked inwards. It is quite conceivable that such a fin disposition with a balance of forward fin area would make for an extremely rapid turn once the slightest commencement of a turn had been made.

Under these circumstances the right wing will get so much air velocity that it will give an amount of support equal to or greater than that of the left wing when put forward.

If the observation is correct the turn will be amazingly rapid and will give the defenceless pigeon a chance of escape from its foes, much as a hare doubles and a rabbit dodges.

52. The scheme is not necessarily suitable for imitation in mechanical aircraft, though the speedy and defenceless scout aeroplane might welcome the ability to perform such a manoeuvre in war. Horizontality, however, is not secured. Col. Dulier, in common with many inventors, appears not to realise that the wings have not even as much as the pendulum any "knowledge" of the vertical, yet if we are to remain horizontal this knowledge must be imported from somewhere. I am not clear whether he has overlooked the fact that slipping in the sense of moving in a direction other than axial with the aeroplane is a necessary incident to aeroplane flight on turning, since a new direction of motion cannot be obtained without destroying momentum in the old direction by doing work on the air at the side of the craft or under it. At any rate, he does not draw attention to the one feature of his observations which seems to be most interesting, the rapidity of turning secured for the pigeon.

53. **Horizontality Maintainers (Lateral).**—Equalising the wing pressures. Countless persons have thought that if provision were made to prevent the total pressure under one wing from exceeding that under the other, the aeroplane would always remain laterally in the same horizontal position as it started from. The moment we consider the side-slip inevitably involved by change of course it becomes clear that perfect balance of fin area above and below some centre of lateral pressure would be necessary also, always supposing horizontality to be desirable.

54. There are large number of persons in favour of equalising the wing pressures if we may judge by the actual constructions in use. Thus Breguet's and Caudron's springy wing ribs, R.E.P.'s (patent 10575, 1909), spring supported wing span, &c. We may include in this the standard scheme of balancing by cross-connecting the warps, &c., though I do not accuse any of these of concentrating their wishes on horizontality.

55. Ramel and Bille (28778, December 11th, 1909) propose to

equalise wing pressures by allowing the air to spill out of the wing which has most lifting pressure by letting it tilt up, thereby bringing the wing which has least lifting pressure to tilt down, while the main mass of the flyer and motor and fuselage remain unrotated save through the indirect action of springs which connect the wings to the main mass (Fig. 14). Here we have a vague attempt to keep

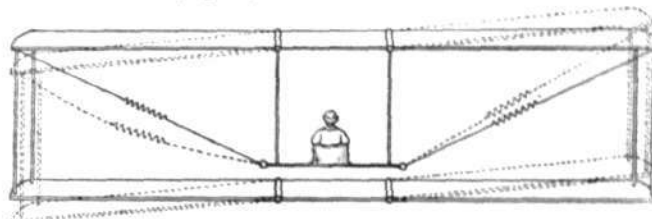


Fig. 14.

the man's seat more horizontal so that there is an element of the pendulum in the device. That he should be safer thus does not appear. This at least is sure, that with the pressure variations which arise in practice large angles of tilt will be found to occur, and the effect will be most terrifying to the man of ordinary training unless some other method of pressure equalisation is intended to be superposed.

56. **An Effect of Equalising Wing Pressures.**—There is one matter in relation to the equalising of wing pressure which must on no account be lost sight of whether we use springs, cross-connected warps, or pneumatic equalisers, &c., and that is, the more perfect the equalising, the more completely the effect of the dihedral angle is wiped out, since the dihedral angle only acts by reason of the difference of pressure established under a descending and a rising wing.

Accordingly a dihedral angle has none of its usually recognised effect if the cross-connection of the warps of the two wings is frictionless, if the warp be sufficiently ample and if it be not controlled by the springiness of the warped spar or otherwise. This has been experimentally proved on B.E.2. With cross-counterflaps and rigid wings as in the Farman aeroplanes this loss of dihedral effect does not hold to anything like the same extent.

57. It is doubtful if equalisation is ever entirely secured and therefore in criticising "horizontality maintainers" lateral, rolling disturbances are to be looked for in spite of attempts in this direction. Some of the causes apart from fin pressures are:—

- (1) From the effect of changing the course, as for example the swing of the weight when the centre of gravity is placed a trifle low.
- (2) From the flywheel effect of the aeroplane as a whole by the swing due to recovering from an intentional roll or yaw displacement.
- (3) From difference of wing speed on a turn banked or otherwise.
- (4) From minor causes of disturbance including the gyroscopic couple on elevating or yawing, from the movements of the flyers, or from engine reaction on starting or stopping, &c.

Of these the first two are the most important usually.

58. **Fin Disposition.**—Not the slightest importance can attach to fins except in the case of side-slips and side gusts. Moreover the effect on fins of vertical gusts when the aeroplane is banked reduces itself eventually to a side-gust from the point of view of the aeroplane.

Although I am not to deal with it, it is right to say before concluding that by far the most important feature of an aeroplane of supposed average performance in other respects is its fin disposition, and probably next its weight distribution. This subject launches us straight into the rigid dynamics of de Bothezat, Bryan, Harper, Greenhill and others or alternatively into the method of Lanchester, who obtains conclusions which the mathematicians accept, though he adopts a line which is sometimes captivating by its ingenuity and sometimes a process of skipping the links of thought in a manner baffling to the less skilled reader. A translation by Lodge or Silvanus Thompson of his work would be of priceless use to English aeronautics.

59. After Mr. Harper's excellent, though difficult, paper before the Aeronautical Society this year, I will not venture, save by alluding to it, anywhere near this subject. He was entirely concerned with air which was either still, or at least straight moving and unaccelerated, which is the same thing in this context, and in his discussion, once the disturbance of equilibrium had been given to the aeroplane, it had still air in which to resume its proper seat.

(To be continued.)

# Models

Edited by V. E. JOHNSON, M.A.

## The Aero Show—Club Exhibits. The Kite and Model Aeroplane Association.

THE actual number of exhibits shown by the above club was forty-five, including thirteen monoplanes; sixteen biplanes; two triplanes; thirteen hydro-aeroplanes, and one petrol motor plant; two of the biplanes and three of the monoplanes were power-driven (*i.e.*,

To give a complete list of the exhibits would be impossible owing to want of space, but amongst the principal were:—

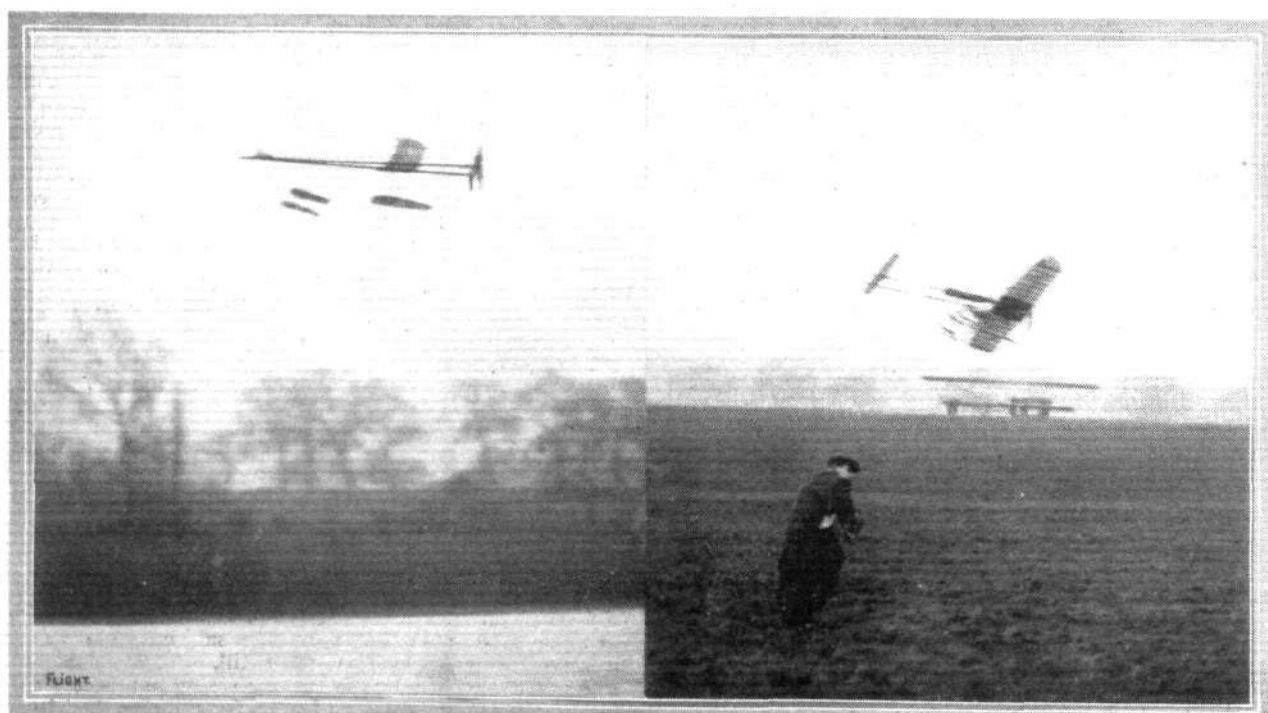
Mr. G. P. Bragg-Smith, who exhibited three models—one a hydro-aeroplane, the other an r.o.g. machine, and the third a model of some historical interest—being the original model with which he won his first gold medal at Wembley Park some years ago, creating



THE MODEL FLYING TESTS AT HENDON.—On the left the r.o.g. starting line before the Judges; and on the right, hand launching the models. "Flight" Copyright.

engined) models. With one or two exceptions, all the prizes were carried off by members of this club. Almost all the models were either of the Canard (elevator in front) or tail-type model, *i.e.*, the main plane or planes in front, and the propellers behind the tail—a type of model first used by Mr. C. Fleming-Williams, and whose leading exponent at the present time is Mr. A. F. Houlberg.

in those days quite a record flight of some 18 secs. The two other models exhibited are of the well-known Bragg-Smith type—a type which, although it may not come out first in every competition (as indeed would be absurd to expect of any one type), never fails to give a good account of itself, and reliability in a model is, after all, one if not the most important factor.



TWO VERY SUCCESSFUL MODELS AT THE FLYING TESTS AT HENDON.—On the left, Mr. W. J. Williams' hydroplane after leaving the water; on the right, Mr. Groves' power-driven monoplane. "Flight" Copyright.



Charles Desoutter, a tractor monoplane, *monocoque* metallic body, CO<sub>2</sub> power plant; steel, &c., chassis, &c., from an exhibition point of view a beautiful piece of workmanship and of almost faultless finish. Unfortunately, as has been proved over and over again in practice, the power-driven tractor monoplane, more especially if of short span and broad wing chord, is an extremely difficult model to fly, and the chances are a thousand to one that such a model will have smashed itself in flight before correct adjustment has been obtained. In the case of a hydro-aeroplane, and a sufficiently large expanse of water to ensure alighting on the same, the case is different. We certainly think Mr. Desoutter would be well advised to build his next model on Canard lines—i.e., if intended for actual free flight. So far as the mere question of design goes, the tractor—or, at any rate, the machine with the main plane in front and elevator behind—stands easily first, and the natural place to put steering or balancing planes certainly appears to be in the rear, instead of in front. One can, of course, put the propeller or propellers in rear of the main plane, and then the great trouble arising from propeller slip stream is avoided—the effect of this latter being to cause the model to rise initially at too steep an angle with possible side slip or a corresponding dive at the end of the motor run.

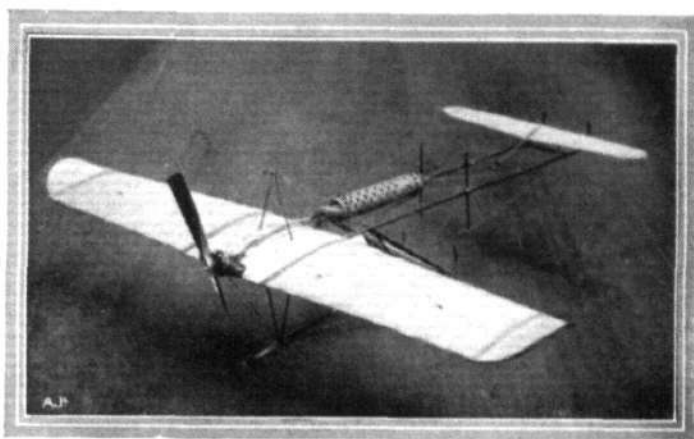
J. H. Dollittle, a tractor monoplane which gained high marks for both design and construction—every part of the model had evidently been very carefully thought out and well proportioned, especially the chassis—simplicity was perhaps the key-note in the design. Unfortunately, the model was not submitted to the flying tests.

H. H. Groves, two power-driven models—one a monoplane, the other a biplane, both driven by steam, flash boiler type. Both models were essentially practical flying models, i.e., models not built in any way for exhibition or show purposes—although the workmanship was of the best—but designed for actual flying and alighting without damage on even unfavourable ground. Just the sort of model which the ordinary visitor to an exhibition would pass by with perhaps little more than a casual glance, but which an expert would carefully study. We must candidly confess that the Canard type of model does not appear to lend itself to a pleasing or taking design, and is in this respect easily beaten by a tractor with *monocoque* body, &c., but when one of the tests to which a machine has to be submitted is actual free flight, then mere design is useless unless it is backed up by a *reliable* ability to actually fly.

A. F. Houlberg, three models—all tail-type machines, one biplane, one monoplane, and one hydro-aeroplane. Mr. Houlberg holds two of the present official records, one for hand-launched and one for r.o.g. machines, and his models exhibited some very interesting points in construction. Both design and workmanship were decidedly good.

F. W. Jannaway, two models—one a r.o.g. biplane and the other a hydro-aeroplane. Here, again, there were points in both the design and construction, more especially with regard to the *fuselage* and chassis, which were both novel and good. Mr. Jannaway had evidently taken great pains and exercised much thought in their construction.

James McBirnie, three models—one monoplane, one biplane, and one hydro-aeroplane. The green-coloured fabric with which these models were covered gave them a decidedly artistic appearance; the workmanship was good, and the design—more especially of the r.o.g. model—is one which gave very good results in actual flight.



Mr. H. H. Groves' steam-driven model monoplane, canard type, which won the power-driven model contest at Hendon last Saturday with a fine flight of 40 secs.

George Rowlands, a large biplane, Canard type, covered in *fuselage*, and provided with two propellers—one situated in the immediate rear of the other, and rotated in the opposite direction by means of a sleeve (and suitable gearing) running on the same axle. The whole design was decidedly original, and it is certainly unfortunate that a smash, when testing, prevented the model from competing in the flying tests.

L. H. Slatter, two models—one a hydro-aeroplane and the other a r.o.g. monoplane. The design of these models was extremely good, and in the actual flying tests both proved themselves capable of excellent performances under very adverse conditions.

D. Stanger, one model, a large petrol-driven tractor-monoplane. Both in design and construction this model was a very great improvement on the one which competed for the Grahame-White Trophy for power-driven models last year at Hendon. The same remarks which we made *re* Canard and tractor type models in Mr. Desoutter's case apply here just the same.

W. J. Williams, one model, a hydro-aeroplane. From a hydro-aeroplane point of view, the design of this model is excellent, and in actual hydroplaning and free flight through the air the design was shown at the flying test to be an eminently practical one. The actual construction of the model is, however, capable of some improvement.

Some extremely interesting and well-constructed models were exhibited by other members of the club, to which we intend to refer more particularly in the model supplement. As a whole, the exhibit reflects the greatest credit on the Association, and is likely, we should think, to be a record for some time to come.

#### Class IV.—Scale Models and Parts.

This section as a whole was, undoubtedly, most disappointing. One of the ideas in organising it was that any particular device or special construction of some specified part of an aeroplane might be exhibited which should (so far as can be judged without actual trial),



A COUPLE OF THE COMPETING MACHINES IN THE MODEL FLYING AT HENDON.—On the left one of the Essor Français models; and on the right, Mr. C. Desoutter's monoplane just rising.

"Flight" Copyright.

be of use as applied to full-sized designs. The number of exhibits was forty-one, and included a few really fine examples of what are usually termed scale models, but if we exclude Mr. H. H. Ridley's design for an improved method of steering an aeroplane whilst running along the ground, there certainly appeared (to the writer, at any rate) but little that could stand the test of actual practice.

Even in Mr. Ridley's case he had overlooked the fact that it would be necessary to warp the wings in conjunction with the rotation of the axles of the steering wheels. This, however, is a matter which could easily be remedied in actual practice.

In a class or section of this kind one always finds examples of absolutely wasted and totally misplaced ingenuity due generally to an absolute lack of all theoretical knowledge of the subject on the part of the inventor and a total disregard (in this case) of the first principles of aerodynamics. In a matter of this kind simplicity in every part, more especially in detail, should be the chief aim of the inventor; to cumber a good principle or point in design with a mass of subsidiary or more or less unimportant detail is a fatal error. Another all-important item too often sadly neglected is the presentation of the invention in an attractive and efficient garb—i.e., a well-made, good and sound workable model. The model should also be of sufficient size to enable one to easily see how it works, and above all it should be complete, ten-tenths finished and not nine-tenths.

## KITE AND MODEL AEROPLANE ASSOCIATION.

### Official Notices.

#### British Model Records.

Hand-launched	Distance	A. E. Woollard	477 yards.
	Duration	A. F. Houlberg	89 secs.
Off ground	Distance	G. Rowlands	232 yards.
	Duration	A. F. Houlberg	51 secs.
Hydro, off water	Duration	G. P. Bragg-Smith	25 secs.
Single-tractor screw,	Distance	F. G. Hindsley	173 yards.
hand-launched	Duration	F. G. Hindsley	36 secs.
Do., off ground	Duration	H. R. Weston	21 secs.

**Official Trials.**—The next official trials take place on the Paddington ground, Sudbury, on Saturday, March 15th, at 3 o'clock. All applications should be forwarded without delay.

How to reach the ground:—

1. By Harrow Road trams from Edgware Road, via Paddington, to Sudbury town station; then take road on right of station, passing over railway bridge, and enter field on right; take stile near tallest trees, and on other side is flying ground.

2. By L.N.W.R. to Wembley, via Willesden Junction; thence 1d. tram to Sudbury town station; then follow route as 1.

3. By District Railway to Sudbury Hill station, via Ealing Common; turn to the right down Greenford Road, and take first on left; distance 1 mile.

Mr. Evans, hon. sec., Paddington Club, will forward a map to anyone on receipt of post card.

**Flying Trials in Connection with International Aero Show.**—These trials were held at the London Aerodrome, Hendon, on Saturday, March 1st, in unfavourable weather. The official results will be found under the Royal Aero Club's official notices. The hydro trials also took place on the same day at the Welsh Harp before a fair attendance, but owing to the weather conditions, &c., the competitions did not come up to those held by the Association in the summer. The Council will invite all those gentlemen of the R.A.C. who were present to attend their summer contests to see a good display of model flying.

**General Meeting.**—The date and place of general meeting will be announced in next issue, this having to be put back on account of the show.

27, Victory Road, Wimbledon, S.W. W. H. AKEHURST, Hon. Sec.

## MODEL CLUB DIARY AND REPORTS.

CLUB reports of chief work done will be published monthly for the future. Secretaries' reports, to be included, must reach the Editor on the last Monday in each month.

**Ecclesall and District (50, CRESCENT ROAD, SHEFFIELD).**

MARCH 15TH.—Flying Bent's Green. Members meet Banner Cross Tram Terminus, 2.30 p.m. Competition list will be announced at an early date.

**Edinburgh Aeronautical Society.**

ON Wednesday, Feb. 26th, the society gave a most successful dinner to the Army aviators then visiting Edinburgh. On March 15th the club biplane will be on view, to anyone interested, at 100, Leith Walk. March 26th, there will be a meeting of the society at the Rutland Hotel, at 8 p.m., when there will be read a short paper on "Head Diving," by Mr. J. Gilson, to be followed by a discussion. The society stocks castor oil and spares for the use of aviators visiting Edinburgh, who should apply to G. T. Cooper, Hon. Sec., 41, Drumsheugh Gardens, Edinburgh.

**Paddington and Districts (77, SWINDERBY ROAD, WEMBLEY).**

MARCH 8TH.—Club tractor trials. March 15th.—K. and M.A.A. official trials on our flying ground at Sudbury. Those who come from south or west by District Railway, via Ealing Common, should alight at Sudbury Hill Station, turn to right and take first on left. Distance one mile. Ask for Mr. Perkins' ground, which is on the left hand side of road before reaching Horsendon Hill. Those who come by Harrow Road trams, take Sudbury car and alight at Sudbury Town Station. Take road on right of station, pass over railway bridge and enter field on right. Walk westward towards tall trees on high ground ¼ mile away, where there is a stile. Over the stile is the flying ground. Map will be posted to anyone entering trials upon receipt of post card by our secretary.

**S. Eastern Model Ae.C. (1, RAILWAY APPROACH, BROCKLEY).**

Blackheath and East Dulwich Branches.—March 8th, Kidbrooke, 2.30 p.m. to 6 p.m. March 9th, Blackheath, 7 a.m. to 10 a.m.; Lee aerodrome, 10.15 a.m. to 12.30 p.m.

Croydon and Beckenham Branches.—March 8th, Duppas Hill, 2.30 p.m. to 5.30 p.m. March 9th, Mitcham Common, 2.30 to 6 p.m.

Impromptu competitions will be held at Kidbrooke and Blackheath.

## "FLIGHT" Prizes of Merit.

Now that the Olympia Aero Show is a thing of the past, we shall be glad to receive further contributions with respect to the above. The Aero Show will no doubt have given many of our readers either entirely new ideas or have re-modelled old ones. There must also be various topics for discussion, desired information combined with criticisms of the exhibits, with which we shall be pleased to deal, also to receive scale drawings and particulars of any machine exhibited. Any one of the above, if of sufficient merit, is capable of being worth either a certificate or merit prize, or even both. Will any reader who has any communication to make *re* any of the above, or any other matter of common interest, kindly send it along without delay?

## Messrs. Rolfe Bros.' Catalogue.

We have received from the above a copy of their revised catalogue of models and model parts, which, in addition to the usual items, includes model tractor-planes, water-planes (Farman type) and a specially designed model Nieuport monoplane, also a new type of combined landing chassis and propeller-bearing for tractors, which the makers claim is absolutely unbreakable, the combined weight is half an ounce; also sets of floats for either 4-oz. or 8-oz. models; and a rubber-tired wheel one and a quarter inches in diameter, built up of two metal discs, fastened to a hub and dished as on motor wheels, which gives maximum strength combined with minimum weight.

## THE CALL.

England, awake! Thine ancient sea-girt walls  
Are challenged by the last-born art of man:  
Thy vaunted safeguard, Neptune's kingdom, falls  
Before the intellect which leaps its span.  
No more thy floating battlements—thy pride,  
Forbid the intruder, his desires defy,  
Since man's inventive skill and powers decide  
To lift the encounter up from sea to sky.  
What self-complacency bids you ignore  
The call of those blest with the sense you lack,  
Who on unheeding ears their warnings pour,  
Striving to rouse you ere your foes attack?  
Has selfish comfort—welcomed parasite—  
So sapped your strength, so bound you in its sway,  
That, like an oak, the symbol of your might,  
Your centuries-old land totters in decay?  
Rouse, ere your crumbling homes become your shrouds;  
Ere foreign steel encircles you, ensnared!  
Rouse, ere the death-stab, screaming from the clouds,  
Rends you and yours, impotent, unprepared!  
Wake, ere calm peace in shrieking chaos ends;  
Ere agonies of defeat your spirits break;  
Ere under victor's yoke your race descends,  
Vanquished, disgraced, to serfdom! England, wake!  
DOUGLAS A. SMART.

[Correspondence and other features are held over this week.—Ed.]

## Index and Title Page for Vol. IV.

THE index and title page for Vol. IV, January to December, 1912, has now been published and any reader can obtain a copy by sending 2d. to the publishers, 44, St. Martin's Lane, W.C. After March 22nd a charge of 6d., post free, will be made.

## Aeronautical Patents Published.

Applied for in 1912.

Published March 6th, 1913.

4,676. J. HOLLOWAY AND — HOWDEN. Aeroplanes and airships.

## FLIGHT.

44, ST. MARTIN'S LANE, LONDON, W.C.

Telegraphic address: Truditur, London. Telephone: 1828 Gerrard.

## SUBSCRIPTION RATES.

FLIGHT will be forwarded, post free, at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 Months, Post Free ...	3	9	3 Months, Post Free ...	5	0
6 " " " ...	7	6	6 " " " ...	10	0
12 " " " ...	15	0	12 " " " ...	20	0

Cheques and Post Office Orders should be made payable to the Proprietors of FLIGHT, 44, St. Martin's Lane, W.C., and crossed London County and Westminster Bank, otherwise no responsibility will be accepted.